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ABSTRACT

Six statements of working principles and 11 major recommendations falling within those areas, as established by the Task Force on Advanced Dental Education, are presented. Supporting recommendations are also provided. The six principles include: (1) no change is recommended in the present goal of predoctoral education, to prepare students for independent general practice; (2) the interests of society are best served by a profession of general practice dentists and on-going comprehensive care; (3) an adequate mix and number of dental specialists is needed to complement general practice care; (4) dentists with specialized training should engage primarily in their specialties; (5) educators and research scientists are essential to the profession and society, and their preparation must be ensured by the profession; and (6) change in such a diverse and complex profession should be realized gradually and with minimal disruption to the existing workforce. The 11 major recommendations address: monitoring predoctoral dental education; program capacity in advanced education for general practice; number of first-year clinical dental speciality positions; review and possible restructuring of specialty recognition; patient care revenues as a major source of advanced clinical program support; model general practice program development supported by government and other agencies; standard financial information system development for advanced programs; stipends for all dentists in advanced general practice education programs; increased support for education and research preparation programs; financial aid for dentists entering education and research programs; and creation of an independent commission on advanced education in medicine and dentistry. (MSE)

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Advanced Dental Education: Recommendations for the 80s

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Issues in Dental Health Policy

W. K. Kellogg Foundation

American Association of Dental Schools

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ADVANCED DENTAL EDUCATION: RECOMMENDATIONS FOR THE 80s

FINAL REPORT OF THE
TASK FORCE ON
ADVANCED DENTAL EDUCATION
OF THE
AMERICAN ASSOCIATION OF DENTAL SCHOOLS

September 1980

The American Association of Dental Schools expresses grateful appreciation to the W. K. Kellogg Foundation of Battle Creek, Michigan, for its generous support of the Task Force.

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FOREWORD

> A profession, the existence of which is justified by service to the public, can maintain control of its destiny only if it is capable of providing the leadership for how it will change. The status quo will not be maintained!
>
> Alvin L. Morris
> *Oral Health, Dentistry, and the American Public*

The evolution of public policy is a complex affair. It is more so when desirable social goals require the amalgamation of private and public sector interests. Such is the case with health policy and health manpower policy in particular. Recently, the W. K. Kellogg Foundation has assisted the dental profession as well as allopathic and osteopathic medicine in their efforts to assemble and analyze current knowledge and project new directions with respect to advanced or graduate dental and medical education.

This study by the Task Force on Advanced Dental Education represents another important element in a group of foundation projects which address the national need for more and better information by which the public and the profession might develop rational dental health policies. The several resulting publications addressing these "Issues in Dental Health Policy" constitute a significant resource for guiding policy development.

There are those who may challenge the conclusions of this report since it does not grow out of objective research. Time and resources did not permit such an approach or, for that matter, documentation of the broader social perspectives which would describe the economic and historical developments out of which some of our present difficulties arose. However, the report is not an end in itself. It does not attempt to resolve all issues which relate to advanced dental education; rather the intent is to facilitate progress leading to the initiation of action programs to improve dental education at all levels. While of first interest to those concerned with dental health and the provision of leadership for change, it deserves the attention of all persons who work to improve public health and health services throughout the nation.

Ben D. Barker
Program Director
W. K. Kellogg Foundation

INTRODUCTION

The American Association of Dental Schools (AADS) was awarded a grant by the W. K. Kellogg Foundation in 1978 to undertake a study of advanced dental education in the United States. The AADS, in close cooperation with the American Dental Association (ADA) Council on Dental Education, convened a task force to review issues and problems, explore solutions to them, and suggest improvements in the advanced education of dentists.

Over 200 organizations and individuals were invited to participate in the study by commenting on material developed during the project. Ten discussion papers commissioned by the task force were circulated during the study, providing both the task force and the dental community with challenging and provocative ideas as well as useful information on a wide range of topics. The papers were distributed for comment early in 1979, and over 300 responses were received. Through a series of meetings, the task force considered the problems and issues in advanced dental education and formulated recommendations, using as the bases for its report the discussion papers, the comments received, existing data about advanced dental education and the dental workforce, and related background literature. A draft of the task force report was then circulated in April 1980 to permit comment by interested persons and organizations before the final version of the report was written.

This study of advanced education in dentistry, which was funded in conjunction with similar efforts in allopathic and osteopathic medicine, comes at a time when there is a growing belief that the country may be producing an oversupply of physicians and dentists. The study is particularly timely for dentistry, since it immediately follows a comprehensive examination of the predoctoral curriculum by the ADA, published as the 1976 Curriculum Study. While the coordinating committee of the Curriculum Study concluded that dental graduates were well prepared to enter general practice, it noted the increasing numbers of dental graduates continuing in advanced training programs, and called for a comprehensive study to identify the educational system needed to prepare future practitioners and to determine whether general practice residencies should be required to provide additional clinical experience.

The Task Force on Advanced Dental Education was established to study

these and related issues. The task force has formulated 11 major policy recommendations, together with a larger set of supporting recommendations representing task force opinion on more narrowly defined issues. These major and supporting recommendations are presented in summary fashion in the first chapter of this report. A synopsis of pertinent background information related to advanced dental education appears in the second chapter, followed by four chapters reviewing the bases for the recommendations formulated by the task force. These four chapters are divided into the general topic areas of Advanced Dental Education for General Practice; Advanced Dental Education for Specialty Practice, Teaching, and Research; Financing Advanced Dental Education; and Planning for the Future of Advanced Dental Education. Appendices contain additional information concerning advanced dental education and the dental accreditation process. The titles of the discussion papers and their authors are listed on the inside of the back cover of this report. The papers will be published serially in the *Journal of Dental Education*, beginning with the October issue.

The recommendations in this report are solely the result of the task force's deliberations, and do not reflect official policies or views of the AADS, the ADA, or any other organization. However, discussion and commitment from the entire dental profession will be required to make these recommendations a reality.

DEFINITION OF TERMS

Dentistry uses a unique nomenclature to describe levels of education. These terms must be defined carefully since subtle distinctions, while important, have become blurred through imprecise use.

Predental education is the college level preparation of dental school applicants.

Predoctoral dental education is the education program offered by dental schools. It prepares students for general practice, and leads to a Doctor of Dental Surgery (D.D.S.) or Doctor of Dental Medicine (D.M.D.) degree.

Advanced dental education is a term describing the formal, structured education of a dentist beyond the first dental professional degree.* (The term postdoctoral dental education has been used synonymously with advanced dental education.) Several types of advanced dental education are offered:

A *graduate program* is a sequence of advanced courses leading to a master's or doctoral degree.

A *postgraduate program* is a sequence of advanced courses leading to a certificate rather than a degree.

A *residency* is a form of advanced dental education that offers special opportunity for advanced comprehensive clinical experience and is usually associated with a hospital or other setting devoted to patient care.

*Continuing education courses of less than one-year duration are excluded from this definition.

I.

SUMMARY OF TASK FORCE RECOMMENDATIONS

This summary chapter contains the six statements the task force established as working principles and the 11 major recommendations made by the task force, together with accompanying supporting recommendations. Each of the major and supporting recommendations is discussed in greater detail in subsequent chapters.

PRINCIPLES ENDORSED BY THE TASK FORCE

As the task force began its review of problems and trends in advanced dental education, it became obvious that a set of general principles concerning dental education and the structure of the profession had to be established by the task force members to serve as the basis for the deliberations to follow. In establishing these principles, the task force assumed that the slow but continuous change seen in dental disease patterns and methods for the provision of care would not have significant effects on the practice of dentistry for the remainder of the century. Six principles were agreed upon and used to shape the recommendations that appear in this report.

- There should be no change in the present goal of predoctoral dental education, which is to prepare the graduate for the independent general practice of dentistry. No predoctoral student should be graduated until competency to care for patients independently has been demonstrated.
- The interests of society are best served by a profession of general practice dentists who provide ongoing comprehensive care and refer patients, when appropriate, to specialists.
- There must be an adequate number and mix of dental specialists able to provide sophisticated and unique dental care services in order to complement care provided by general practice dentists.
- Dentists with specialized education and training should be engaged primarily in the practice of their specialties.

- Educators and research scientists are essential to the dental profession and to society. Their preparation must be ensured by those responsible for the conduct of advanced dental education programs.
- Although the future of advanced dental education should be the result of careful planning, change in a profession as diverse and complex as dentistry should be realized in a gradual manner and with minimal disruption to those who currently comprise the workforce.

RECOMMENDATIONS CONCERNING PREDOCTORAL DENTAL EDUCATION

In reviewing the issues concerning advanced dental education for general practice, the task force found that almost all discussion was, of necessity, linked to considerations of predoctoral dental education. The task force believes that the present four year predoctoral curriculum provides sufficient time to prepare students adequately for general practice. However, the continued rapid increase in knowledge and skills associated with the general practice of dentistry suggests that the predoctoral curriculum should be reviewed periodically.

1. ***The task force recommends that the ADA and the AADS review periodically and analyze all available information on the status of predoctoral dental education in the United States. Every five years these organizations should report the success of the dental schools in meeting the profession's stated goals for predoctoral education.***

Supporting Recommendations

- *The predoctoral dental curriculum should not be extended at the present time.*
- *Every effort should be expended to make more efficient use of the time within the predoctoral curriculum.*
- *Required science courses should not be moved from predoctoral education to predental education, but advanced placement should be offered to students who have completed certain of these courses.*
- *To ensure competency of graduates, flexible curricula should be available to accommodate the needs of individual students.*

RECOMMENDATIONS CONCERNING PROGRAMS IN ADVANCED EDUCATION FOR GENERAL PRACTICE

The task force reviewed carefully recent developments in advanced general practice programs, including increases in enrollment in general

practice residencies, establishment of new advanced programs in general dentistry, and frequent discussions concerning the desirability of a requirement for a fifth year of education. The task force believes that despite the increasing popularity of advanced general practice programs, not all dental graduates need a postdoctoral program. However, the number of programs should be enlarged so that a majority of graduates seeking such an experience may find a position.

2. ***The task force recommends that the number of positions in general practice residencies and other advanced dental education programs designed to better prepare students for general practice should be increased to accommodate approximately one-half of the dental school graduates by the mid-1980s.***

Supporting Recommendations

- *The AADS should compile and distribute information concerning all advanced dental education programs.*
- *The AADS should institute an application service for all advanced general practice programs.*
- *Competent career counseling should be available to all predoctoral dental students.*
- *The ADA Commission on Dental Accreditation should remain the sole accrediting agency for all advanced general practice programs.*
- *All advanced general practice programs should be affiliated with academic health centers, preferably with dental schools or dental departments.*
- *The objectives of advanced general practice programs should be determined carefully and stated clearly; a common objective should be that every student be able to review professional literature and appropriately apply research findings to the care of patients.*

RECOMMENDATIONS CONCERNING PROGRAMS IN ADVANCED EDUCATION FOR SPECIALTY PRACTICE

The task force expended considerable effort in examining trends and projections of the number of dental specialists and the number of entry positions in specialty programs. Appendix A contains discussions of these trends and projections. The task force believes that the current trend of an increasing proportion of dental specialists compared to general dentists and the nation's population should be halted.

3. ***The task force recommends that the total number of first-year clinical dental specialty positions be decreased.***

Supporting Recommendations

- *The current clinical specialist-to-population ratio of 7.4:100,000 should serve as an upper boundary until the optimal balance between general practice and specialty dentists can be determined.*
- *Reductions in clinical dental specialty programs should occur first in those programs and disciplines that have experienced substantial enrollment increases in the past decade.*

The task force received numerous suggestions for changes within the dental specialties during the study. Although the study did not permit the consideration of such suggestions, the task force believes that carefully planned restructuring of dental specialty organization is necessary.

4. ***The task force recommends that the ADA, through its Council on Dental Education, undertake a major study of dental specialization to review the purpose of dental specialty recognition and to accomplish the most effective structuring of those areas deserving specialty recognition.***

Supporting Recommendations

- *The study of dental specialization should include a review and, if necessary, revision of the criteria for specialty status and an evaluation of existing and potential specialties using the revised criteria.*
- *Programs in special areas of dentistry that are not recognized by the ADA should undergo periodic review by their parent institutions.*
- *The admission of foreign students to advanced dental education programs should be evaluated carefully to avoid exploitation of students and programs.*
- *Master's and doctoral degrees should be awarded only by programs that emphasize research and require a thesis.*

RECOMMENDATIONS CONCERNING FINANCING ADVANCED DENTAL EDUCATION

The task force noted the trend of decreasing support for dental education from a variety of sources and increasing program costs. The task force believes that advanced dental education programs in clinical fields must manage costs efficiently, maintain existing support, and maximize income from patient care activities.

5. ***The task force recommends that patient care revenues should be a major source of support for advanced clinical dental education programs.***

Supporting Recommendations

- *Dental faculty and administrators should review their curricula to determine the optimal involvement of dental graduates in clinical services.*
- *Programs should reduce organizational inefficiencies that limit income and detract from the quality and character of patient care.*
- *Program faculty should become more involved in providing patient services.*
- *Barriers to the use of patient care income for program support should be recognized and removed by university and public administrators.*

Because advanced general practice programs have received special support that will terminate in the near future, and because an increase in the number of these programs is recommended, the task force believes that funding is necessary to develop a variety of efficient program models.

6. ***The task force recommends that the federal and state governments and other public and private agencies, including dental insurers, provide support to develop and evaluate a broad range of model programs for advanced education in the general practice of dentistry.***

Although the financing of advanced dental education is one of the most critical problems facing institutions offering such programs, the task force found that precise information concerning costs and revenues is almost nonexistent. It believes that such information must be available to ensure continuing financial support and to achieve other task force recommendations.

7. ***The task force recommends that the AADS and the ADA Council on Dental Education jointly develop a standard financial information system for advanced dental education programs.***

The task force believes that while it would be desirable to provide financial support to all students enrolled in advanced dental education programs if resources were available, priorities for support must be determined given the current financial situation.

8. ***The task force recommends that all dentists in advanced general practice programs be provided stipends.***

Supporting Recommendation

- *When possible, students enrolled in clinical specialty programs should receive stipends as partial payment for patient care services and assistantships for teaching and research responsibilities.*

The task force considered the financial aspects of advanced dental education for careers in research and teaching separately, since these programs historically have been supported in a different manner. The task force believes that increases in the numbers of well prepared dental research scientists and dental educators are important to the profession, and feels that both program and student support will be necessary to ensure an adequate supply of dentists entering these careers.

9. ***The task force recommends increased federal, state, and private support for advanced education programs preparing dentists for careers in education and research.***

10. ***The task force recommends that fellowships, assistantships, and loans be available to support dentists preparing for careers in education and research.***

Supporting Recommendations

- *Programs intended specifically to prepare dental educators should be developed and located in strong, academically-oriented institutions with well developed university relationships.*
- *Inservice training opportunities for dental educators should be established.*

RECOMMENDATIONS CONCERNING THE FUTURE OF ADVANCED DENTAL EDUCATION

The task force feels strongly that, as advanced dental education becomes increasingly complex, the need for planned evolution becomes greater. After considering alternatives within the dental profession for establishing an influential group that could continue the present study, set goals, review developments, and suggest future directions, the task force believes that an interprofessional group represents the best method for achieving this ongoing evaluation.

11. ***The task force recommends the creation of an independent commission on advanced education in medicine and dentistry.***

The task force presents suggestions concerning the sponsorship, composition and membership, and responsibilities of the commission, and also suggests alternatives for establishing a commission for advanced dental education if the interprofessional group proves impossible to organize. Suggestions are also presented to ensure the development of information needed by those making decisions about advanced dental education.

II.

BACKGROUND INFORMATION ON ADVANCED DENTAL EDUCATION*

THE EVOLUTION OF ADVANCED DENTAL EDUCATION

The formal education of dentists in the United States began 140 years ago when the founding of the Baltimore College of Dental Surgery in 1840 began dentistry's separation from medical education. Although in 1865 Harvard became the first university to establish a dental school, it was not until 1929 that the last proprietary school closed.[1] The transition from proprietary to university education was accompanied by accreditation standards and educational prerequisites for admission to dental schools. The AADS officially recommended in 1935 that all dental students have two years of predental education and that the predoctoral dental curriculum be four years in length.[2]

Formal advanced education in dentistry was initiated by the University of Michigan in 1894.[3] The growth of such programs was slow and only five schools offered advanced education by 1925. Until about 1935 any licensed dentist could announce as a specialist without regard to laws or professional ethics. This lack of standards resulted in considerable professional and public confusion that led the AADS to report in 1935:

> In general, no special license is required for the practice of a specialty . . . Consequently, some specialists have taken no additional organized training beyond that afforded by their undergraduate dental course, but others through private, postgraduate, and graduate education have sincerely attempted to attain superior knowledge and ability in their chosen fields.
>
> At least two important factors have given rise to specialization: (a) The particularly difficult problems presented by certain types of cases, the solution of which requires more knowledge and skill than the training and experience of the general practitioner afford, and (b) the desire of some general practitioners to exclude certain fields of service from their practice. The incomes of specialists are higher on an average than the incomes of general practitioners, which is undoubtedly the principal lure that leads to specialization. However, there are other reasons for specialization, such as a special interest in a particular type of service, the desire of a practitioner to develop his service to a higher degree of perfection than is possible if he gives his attention to the entire field, and the desire to engage in research and contribute to knowledge.[2]

*More complete descriptive data concerning advanced dental education are presented in Appendix A.

Although the growth of advanced dental education was linked to the evolution of standards for specialty practice, it was not until the 1940s that dental organizations actively began to study problems and issues related to advanced education and specialization. In 1942 the AADS made recommendations concerning the structure, governance, and function of graduate dental education.[4] In 1945 the ADA Council on Dental Education completed a study of specialization, defining five dental specialties and recommending a minimum of one year of advanced education for specialty preparation.[1] In 1946 the ADA established requirements for the hospital dental internships and residencies and began to accredit hospital dental programs.[5,6] Although requirements for specialty programs were approved by the ADA in 1963, it was not until 1966 that specialty programs began to be accredited.[7]

Programs that prepared dentists for careers in education and research also were evolving during these years. Both Yale and Rochester began to prepare dental graduates for academic careers in 1929–30, although neither operated dental schools.[3] The preparation of dental research scientists was stimulated when the National Institute of Dental Research (NIDR) was established in 1948 and research training grant programs were initiated.[8]

ADVANCED GENERAL PRACTICE EDUCATION

The established advanced program in general dentistry is the general practice residency (GPR) program. These programs are approved by the ADA Commission on Dental Accreditation and prepare residents to manage the dental care of a wide range of ambulatory and hospitalized patients. Although hospital-based, these general practice programs, which superseded the general dental internship programs, may be sponsored by either a dental school or a hospital and are usually one year in length.

General practice residencies are the fastest growing segment of advanced dental education. Between 1972 and 1979 the number of programs increased from 223 to 289, and the number of first-year residents increased by 70 percent from 542 to 923.[9] The percentage increase in general practice residency positions has exceeded increases in dental school graduates and specialty program positions. Most general practice residents enter programs immediately upon graduation from dental school. Almost every GPR program pays a stipend to enrollees, with an average range in 1979–80 between $14,000–$16,000.[9] Although the residencies are used by some new graduates to increase the probability of admission to a specialty program, the primary benefit of these programs is the increased knowledge, skill, and confidence of the graduates in providing a comprehensive range of dental services.

The growth of general practice residencies has been fostered by the availability of hospital funds, especially those received through Medicaid and the 1976 Health Professions Educational Assistance Act. The Robert

Wood Johnson Foundation also has assisted some GPR programs through its program to expand dental services to ambulatory patients in programs under hospital sponsorship.

A second type of advanced general practice program, the advanced educational program in general dentistry, was approved by the ADA House of Delegates in 1979. This program has a slightly different focus than the general practice residency.

> An advanced educational program in general dentistry will provide advanced training in clinical dentistry and applied basic sciences and refine skills necessary for the generalist to provide comprehensive patient care for all population groups. It is a planned, sequential postdoctoral training program of a minimum of one year in length that is specifically designed to meet the needs of graduates desirous of enhancing their skills as general practitioners. The program is a supplement to the predoctoral curriculum but not a required component of that educational sequence.[10]

These programs will be offered in patient care institutions other than hospitals. Once they are established, they will increase the available advanced training positions in general practice and will undoubtedly affect the evolving role of the general practitioner in dentistry.

DENTAL SPECIALTY EDUCATION

Education in the dental specialties occurs in dental schools, patient care institutions such as civilian and military hospitals, and in the case of dental public health, in graduate schools of public health. Programs designed to prepare practitioners are customarily two years in length, except oral and maxillofacial surgery, which is a minimum of three years. The combined first-year enrollment in the eight dental specialties has remained stable since 1972.[9] In 1979 the largest groups of first-year specialty students were enrolled in orthodontics and oral and maxillofacial surgery. Two-thirds of the specialty programs and almost three-quarters of the first-year students were in programs sponsored by dental schools.

Although enrollment in specialty programs has been stable over the past few years, the proportion of specialists compared to the population and compared to general practitioners is increasing. These changes are a result of fairly large annual additions to a relatively small number of existing specialists. Since the large growth in entry positions occurred in the 1960s, the total number of specialists has not yet stabilized. The current proportion of specialists to population is 7.5:100,000, and unless changes in entry positions occur, this figure is expected to increase to 10.9:100,000 by the end of the century.* In 1965 there were 6.5 active dental specialists per 100 general practitioners, in 1975 there were 11.6, and by the year 2000 the proportion is expected to increase, although more slowly, to 18.5 dental specialists per 100 active general practice dentists.[11] Over half the dental specialists active in 1979 were either orthodontists or oral and maxillofacial surgeons.[12]

*If the two nonclinical specialties, dental public health and oral pathology, are excluded, the current proportion of specialists to population is 7.4:100,000.

In 1979–80, 13 percent of the total enrollment in dental specialty programs were nonresident aliens. Among the clinical specialties, the greatest number of nonresident aliens was enrolled in orthodontics (n = 111), whereas they constituted the greatest percentage of total student enrollment in prosthodontics programs (22 percent).[13] No specific information is available to document the number of foreign students who remain in the United States after completing specialty education.

Each of the eight dental specialties has a professional academy or association and a certifying board; the latter must be formally recognized by the ADA. Guidelines for advanced programs are developed by the respective academies or associations in cooperation with the boards, then reviewed and acted upon by the Commission on Dental Accreditation. These officially adopted guidelines, plus the commission's requirements for advanced specialty education programs, are used as criteria for program accreditation.

It is difficult to interpret national data on tuition costs and stipends for specialty students because of institutional reporting practices. Generally, students in dental school-based specialty programs pay tuition and do not receive stipends. If stipends are offered, they are usually less than residency stipends, and are provided in return for assistance in teaching or research. An exception is dental public health, where federal subsidies to schools of public health have supported dentists enrolled in these schools.

Dental specialists cluster in areas that have a high concentration of general dentists, since the former acquire most patients by referral from the latter. In contrast, most specialists in dental public health and oral pathology are employed in salaried positions, and consequently their incomes are usually less than those of specialists in private practice. Specialists in the six clinical specialties generally provide direct care to patients and realize significant income advantages over the general dentist. In 1976, the average net income for clinical specialists in private practice was almost 50 percent greater than the net income for general dentists.[14]

EDUCATION FOR RESEARCH AND TEACHING CAREERS

In 1979 the ADA reported that there were 3,665 full-time clinical and 1,856 full-time basic science faculty in dental schools, as well as part-time faculty equivalent to an additional 131 full-time clinical and 1,429 full-time basic science faculty.[15] Not included in these numbers were those faculty teaching in nondental school-based general practice residency and specialty programs. In addition, there are dentists with advanced training who provide teaching services in related health disciplines who are not included in these data. The number of dentists whose primary professional activity is dental research is unknown.

Many dental research scientists and dental educators have arrived at

their present positions as a result of personal interest and talent rather than through a formal or standardized plan of study. In addition to offering clinical specialty education to graduates who may elect to teach rather than practice, dental schools offer a limited number of programs in such special areas as anesthesiology, biomedical sciences, dental materials, occlusion, operative dentistry, oral diagnosis, oral biology, oral medicine, and radiology. The length of these special programs is determined by the sponsoring institution. The existence of these special programs suggests the need for dentists who are trained in a range of disciplines or areas beyond the recognized dental specialties.

SOME DISTURBING TRENDS

From its origins, dentistry has been a profession of general practitioners; the family dentist provided continuing care to patients and treated most of their dental health needs. As the number of dental specialties and specialists has grown, the general dentist has referred more patients to the specialist. Both the general dentist and the dental specialist perform a necessary service, but the balance between the two types is critical. At the present time, most of the dental work force is in general practice.

Medicine presents an alternative model, since the vast majority of the medical work force is in specialty practice. A total of 23 specialty boards have been established in medicine since 1917. The move to specialty practice by the medical work force was not planned, but evolved naturally as new knowledge, concepts, and technologies created demand and opportunities for more concentrated study and practice.

Two problems have accompanied this shift in the medical work force. Patients have difficulty finding a physician who will assume ongoing responsibility for their general medical care and who will guide their use of specialist services. In addition, patients have been faced with a substantial increase in the cost of medical care that has paralleled the move to specialization and the use of increasingly sophisticated diagnostic and treatment procedures. Although dentistry has not experienced these problems and there is no evidence to indicate that dentistry will become a specialty-dominated profession in the near future, the rising proportion of specialists in the work force may portend the emergence of similar problems.

In spite of dramatic changes in predoctoral dental education in recent years, the course of study continues to span four years. However, there are some indications that this time may increase. Most experimentation with "compressed curricula" has ceased, and required summer sessions have been added at most schools.[15] While newly graduated dentists are prepared to begin practice without further formal training, apprenticeship, or entry-level employment, the recent rapid increase in the number of these graduates entering advanced general practice programs may have the effect of

adding one additional year to the continuum of the curriculum for some dentists.

Another trend, noticeable throughout higher education, has affected dental education. There has been a gradual erosion of financial support for advanced education, while at the same time the costs of program operation have increased significantly. Federal funds especially have decreased as Congress responds to a perceived surplus of health professionals. One outcome of these ever-present fiscal problems is the decrease in funds to support dental research and dental research personnel.

Currently there is public impetus to review the specialty and geographic distribution of the medical work force. Dentistry usually is included in governmental programs and initiatives intended to resolve problems that have occurred primarily in medicine. Therefore, any public action that results from the ongoing reviews of medical manpower could also be extended to dentistry. These actions may or may not be best suited to dentistry. Unless governmental leaders can be persuaded that alternative strategies are more appropriate, dentistry will have little recourse. There is increasing need for careful planning to suggest future directions for the dental work force and for advanced dental education, supported by accurate data.

III.

ADVANCED EDUCATION FOR GENERAL PRACTICE

A CHANGING PATTERN

The primary goal of predoctoral dental education always has been to prepare general dentists for practice without additional formal education. To accomplish this goal, students are required to master large amounts of information, become competent in a wide range of diagnostic and therapeutic procedures, and, finally, gain confidence through the repetitive and comprehensive care of patients. Legally and ethically, dental students may obtain licenses and begin to practice immediately upon graduation in all states except Delaware. Recently, substantial numbers of new graduates have sought advanced training for general practice. The 70 percent increase in the number of dental school graduates enrolling in general practice residency programs since 1972 is the notable development in advanced dental education of the past decade. Program growth has been encouraged by the rising demand for dental services in hospitals due to increased Medicaid and other forms of patient reimbursement, and because of new federal incentives to establish general practice residencies. Increased interest in these programs among dental graduates has been attributed to the availability of opportunities to increase proficiency by treating patients with complex dental and medical problems in a hospital, the opportunity to acquire more confidence before entering practice, a decrease of short-term career opportunities in the armed services where graduates could gain additional practical experience, and the availability of attractive stipends in general practice residencies.

The rising enrollment in general practice residency programs has been cited as an indication that more education is necessary to prepare students to enter the general practice of dentistry. The total length of predoctoral dental education has increased during the past decade by expanding the daily course load and by extending the program into what were previously summer vacation periods. These increases have occurred concurrently with a major expansion in dental knowledge, the development of more sophisticated technical procedures, and changes in dental practice. The curriculum study of 1976 documented the content of the predoctoral cur-

riculum and evaluated the preparation of general practitioners by dental schools.[16] While it found that graduates were adequately prepared for clinical practice through broad exposure to basic, clinical, and behavioral sciences, the study concluded that, although there was variability in the curriculum of dental schools, there was not time in most schools to include more information or clinical experience.

However, the task force is persuaded that the pressure to add to the curriculum will continue as knowledge grows and dental practice becomes more complex. Several approaches have been suggested to accommodate the further growth of dental knowledge and ensure adequate preparation of general dentists without hopelessly overcrowding the predoctoral curriculum. The suggestions include:

1. Requiring that some science courses currently presented in dental schools be completed by applicants before entering dental schools.
2. Making dental schools' curricula sufficiently flexible to accommodate the differences of individual students while eliminating content that is less important for general practice.
3. Extending the preparation for general dentistry by adding either an additional year to the predoctoral program or by requiring a year of advanced general practice experience before licensure.

The third suggestion, coupled with strong demand for general practice residencies, has clear implications for advanced dental education. Therefore, the task force directed its initial attention to certain issues in predoctoral dental education, since it believed it necessary to resolve those issues before addressing questions about advanced education for general practice.

ISSUES IN PREDOCTORAL DENTAL EDUCATION

Changes in Admission Requirements. The possibility of moving required science courses from the predoctoral to the predental or college level has been considered and tried by some dental and medical schools. While a small number of students has benefited from this approach, there has been steady resistance to requiring those courses as additional admission prerequisites. Clearly, this approach has not become standard practice for several reasons. Expanding the list of required science subjects compromises the breadth and freedom of a liberal college education, limits the choice of academic major, and inappropriately excludes some applicants. As a reasonable alternative to moving science courses, the task force believes more dental schools should offer advanced placement to entering students who have completed selected science courses, thereby providing some dental students the opportunity for special studies.

A Flexible Curriculum. If dental schools are to accomplish their primary goal, students must not be graduated until competency to care for patients

independently is demonstrated. Since students learn and develop clinical skills at different rates, there is need for greater curriculum flexibility. Experience with self-paced programs by a number of dental schools suggests that those programs are sound in theory, but they have not been widely accepted. While many dental schools may not choose to offer these programs, all schools should accommodate the needs of individual students by extending the period of training, when necessary, to ensure competence before graduation.

A Five-Year Curriculum. A decision to extend the amount of time required to prepare general dentists is of such magnitude to the students, the dental education system, and ultimately to society that its necessity must be clearly apparent. Dental schools and their faculties must have exhausted every option to realize curricular efficiencies before recommending that the period of education be extended for all students. The task force does not believe that the predoctoral educational preparation for general dental practice should be extended at this time.

The task force believes that most students can be prepared to practice dentistry in approximately four years if the curriculum contains only essential information, and if sufficient time is available for students to integrate and refine knowledge while gaining clinical competence. Faculty constantly have been revising their curricula by adding important new experiences, eliminating outdated or redundant material, and decreasing the time devoted to laboratory and clinical exercises that do not contribute substantially to the development of a competent general dentist. Such improvements must continue through constant evaluation of predoctoral curricula.

Having reached the conclusion that the four-year curriculum still is adequate, the task force hastens to point out, however, that a very formidable task lies ahead in further revising and improving the predoctoral curriculum on a continuing and periodic basis. Several methods are available to the dental educational community to accomplish this purpose. For example, a considerable amount of information about dental education is collected currently by the AADS and by the ADA Council on Dental Education and Commission on Dental Accreditation. The accreditation process requires extensive institutional self-study and results in a detailed evaluation report. Both the ADA and the AADS conduct surveys that provide information about dental schools and their students, faculty, and graduates. All these activities provide a substantial base for systematically monitoring predoctoral education. Periodic synthesis and analysis of available data can document objectively changes in education, identify outstanding problems, and call attention to the need for any major shifts in the character or length of predoctoral education.

1. ***The task force recommends that the ADA and the AADS periodically review and analyze all available information on the status of predoc-***

toral dental education in the United States. Every five years these organizations should report the success of the dental schools in meeting the profession's stated goals for predoctoral education.

OPPORTUNITIES FOR ADVANCED EDUCATION IN GENERAL PRACTICE

The mission and operation of most dental schools make it difficult to provide predoctoral students with certain types of clinical experiences. Learning technical skills and the care of patients always is a slow process. It is difficult for students to integrate material learned separately for each clinical area and to gain realistic experience in providing comprehensive patient care. Because of time restraints, students treat a limited number of patients, few of whom have complex treatment needs. However, the newly graduated dentist must care for such patients in practice. Some features of practice such as the total management of each patient, the care of a large and diverse group of patients, and the operation of a dental office are not easily simulated in dental schools. Faculty may not find it easy to move from their initial role as demonstrators to that of friendly critics as students' skills and judgment mature. Students, in turn, feel they are not able to exercise independent judgment since in dental school they are required to seek faculty approval for every step of each clinical procedure.

While these problems do not necessarily diminish the competence of the graduate, they do make the transition from predoctoral education to general practice more difficult. General practice residencies and the newly established advanced programs in general dentistry are designed, in part, to overcome many of these inherent limitations of predoctoral dental education. The task force recognizes that an increasing number of dental graduates are now seeking a postdoctoral experience in general practice. These programs give the new graduate a chance to integrate knowledge and skills learned in dental school while gaining additional proficiency and confidence in providing a wider range of comprehensive dental services. In treating medically-compromised patients who might otherwise not receive dental care, general practice residents become sensitive to the unique needs of these special patients. The new advanced program in general dentistry should provide the dental graduate with similar experiences in other practice settings.

Having concluded that it is not necessary at this time to extend the dental school curriculum to five years, the task force next considered whether there was justification, based on all information available, to recommend a mandatory year of postdoctoral training for all graduates of dental schools or whether it was better for society, the dental profession, and its educational components to continue the present system of voluntary selection

of advanced general practice or specialty education. The task force believes that it is appropriate at this time to recommend the less drastic alternative. However, should additional time to prepare for general practice be necessary for all students in the future, the task force believes that it might best occur at the advanced general practice level and not in predoctoral programs.

The task force recognizes that not all dental students need a postdoctoral experience to make the transition to practice. It emphasizes the fact that facilities do not exist to accommodate all of the graduates of the nation's dental schools in advanced programs. However, the task force does believe that setting as a goal the accommodation of approximately half of all dental graduates into advanced general practice education by the mid-1980s is reasonable and realistic. The task force points out that this goal is reachable because of the options now available by virtue of the new advanced program for general practice plus the facilities that would become available as a result of recommendations concerning specialty education.

2. ***The task force recommends that the number of positions in general practice residencies and other advanced dental education programs designed to better prepare students for general practice should be increased to accommodate approximately one-half of the dental school graduates by the mid-1980s.***

OTHER ISSUES*

Counseling. As the number and types of advanced general practice programs broaden and as the number of applicants increases, the need for certain support services will be more apparent. As a first step, a competent and trained career counselor should be available to predoctoral dental students. The informal guidance of faculty members will become less adequate as career options become more diverse. Students often commit themselves to future plans before their last year in dental school, the year in which many students have the first opportunity to integrate skills and knowledge to provide comprehensive care. Because of their earlier experience with specialty department rotations, students may choose specialty education and practice before they are fully acquainted with all phases of dental practice. A trained counselor can help students identify their motives and clarify their career goals.

Admissions. While some information about advanced dental education programs now is available from the ADA Council on Dental Education and Commission on Dental Accreditation, more is needed. Clear descrip-

*The issues discussed in this section of the report generally also pertain to advanced specialty education, but are not presented again for the sake of brevity.

tions of sponsoring institutions and programs are essential, including objectives, curricula, and administrative schedules. Students need to know more about costs, stipends, and employment opportunities, particularly for new programs. The AADS presently collects and distributes similar information about dental schools and should extend this service by compiling an annual report describing all advanced dental education programs.

Application and admission to advanced dental education will become more complex and expensive as new general practice programs come into being. Since most programs are small, students must make numerous applications to increase their chances of admission. Thus, program personnel will have to review larger numbers of applications and perhaps conduct more interviews. Without generally accepted application and acceptance deadlines, confusion will increase.

The AADS should be responsible for developing services that will increase the efficiency of the selection process. At a minimum, a standardized application form should be developed for advanced general practice programs. If program directors could agree on information to be gained from an application and on common application and selection deadlines, then applicants, dental schools, and the programs would benefit greatly. An application service similar to that conducted by the AADS for the dental schools would be a practical improvement for all concerned. Although earlier attempts to create such a system have failed, the expansion in the number of advanced general practice programs warrants new efforts by the AADS. In time it will be desirable to consider a service that coordinates the selection of applicants to advanced general practice programs. Medicine offers a successful model in the National Resident Matching Program. Its establishment in 1953 as the National Intern Matching Program significantly eased the pressure on medical students, schools, and hospitals at a time when they faced a situation similar to present developments in dentistry.

Affiliation. All dental education programs have benefited from closer association with universities, and especially with their academic health centers. Although university governing structures can be unwieldy, they tend to set desirable academic standards, require evaluation of students, faculty, and programs, and provide valuable educational services. Teaching hospitals usually afford similar advantages, but most other locations where dental care is provided do not. Medicine, and to a lesser degree dentistry, has had extensive, unfavorable experiences with internships and residencies in nonacademic environments. With an increase in the number of positions in advanced general practice education and diversity of programs, it will become increasingly important that all programs affiliate with academic health centers, and preferably with dental schools or dental departments. These affiliations may, for example, include shared development of program goals and objectives, joint decisions on selection and evaluation of faculty and students, joint responsibility for self-study and evaluation, and the exchange of faculty and sharing of resources.

There are important advantages for the dental school in such affiliations. General practice programs serve patients and provide practice settings that are valuable in the education of dental students but impossible to replicate in a dental school. Affiliated programs provide opportunities for clinical research, offer a base for the continuing education of practicing dentists, and may further the role of the institution in serving regional health needs.

Evaluation. Although general practice residencies and the new advanced programs in general dentistry share broad goals, diversity among individual programs is desirable. The specific objectives of each program should be determined carefully, stated clearly, and then communicated so that applicants can make rational, informed choices among a range of opportunities. While a list of program objectives is not the only criterion used to evaluate educational programs, defining and clearly communicating objectives is an important initial step. A common objective should be that every student be able to review professional literature and apply appropriately research findings to the care of patients even though an indepth, concentrated research experience is not part of most advanced general practice programs.

The dental profession supports the ongoing evaluation of all recognized dental education programs through the ADA Commission on Dental Accreditation. As an impartial, qualified accrediting body, it enjoys the respect of the dental profession and the educational community. Accreditation site visits provide an objective review of programs and recommendations for change. The task force believes strongly that the commission should remain the sole accrediting agency for all advanced general practice programs.

IV.

ADVANCED EDUCATION FOR SPECIALTY PRACTICE, TEACHING, AND RESEARCH

SPECIALTY PRACTICE

The Number of Specialists. Specialists complement general practitioners in the dental work force by providing advanced diagnostic and therapeutic procedures and by treating patients with severe oral and facial injuries, unique pathological conditions, or abnormal growth and development problems. Specialists also treat medically-compromised patients and those persons who are difficult to manage. The task force believes that the number of specialists should be commensurate with the demand for specialty care and that dentists engaged in specialty practice should limit their activities primarily to specialty services. While there will be a continuing need for dentists with specialized skills and experience, there is no evidence of shortages of dental specialists. On the contrary, manpower projections (Appendix A) indicate a growing absolute and relative supply of dental specialists in the future. The task force believes that action should be taken now to control this growth.

Serious problems can arise from an oversupply of dental specialists. The experiences of the medical profession over the last 30 years demonstrate clearly that there are many disadvantages to overspecialization in a health profession. If the number of patients seeking treatment from an individual specialist declines, it may become more difficult for the specialist to maintain competency in all phases of the specialty. Patients may receive more than the optimal amount of care and consequently pay more for dental care than is necessary. Also, an increased proportion of specialists in the dental work force will not necessarily alleviate geographic distributional problems, since specialists are likely to continue to locate where there are enough general dentists and patients to sustain a practice. In addition, as the total supply of active dentists increases, it is likely that competition among all dentists will increase. The task force believes that the general practitioner of the future will be competent to provide a wide range of dental procedures, including some that now fall within the domain of specialty practice. Thus, the need for services rendered by dental specialists may increase more slowly than even the growth of the population in

the next few decades. Any suggestion that specialists, faced with this increasing competition, should expand their services to include general practice procedures and reduce the proportion of time devoted to specialty procedures would be ill-advised and not in the best interest of the patient, the profession, or the public.

Determining the number of dentists, by specialty, required to meet the future demand for specialty care requires further development and extension of complex forecasting methods. Even if adequate forecasting models were now available, their application still would have to await better definition and agreement within the dental community as to what should constitute appropriate specialty care. However, the projections indicating a rising proportion of specialists, coupled with the adverse consequences of an oversupply of specialists and the absence of any indications of substantial future increases in demand for specialists' services, are sufficient reasons to suggest that the increase in the proportion of dental specialists should be halted.

The current proportion of clinical specialists to population should serve as an upper boundary until the optimal balance between general practice and specialty dentists can be determined.* The current ratio of clinical dental specialists to population is 7.4 per 100,000. The task force believes that this ratio is a reasonable upper limit to meet the future need for specialized dental services. Since the current rate of increase in the number of dental specialists is greater than that of the population, the number of dentists completing clinical specialty programs and entering practice in the United States must be decreased.

3. ***The task force recommends that the total number of first-year clinical dental specialty positions be decreased.***

To maintain the current population-based proportion, the aggregate number of first-year positions in advanced programs for the six clinical specialties must be reduced by approximately one-third from the 1979–80 enrollment of 1,191. Such a reduction assumes no change in the number of nonresident alien dentists enrolled in these programs.**

The pattern of these reductions must be considered carefully both within and among institutions. Reductions should occur first in those specialty programs and in those disciplines where enrollments have increased substantially during the past decade. Although the establishment of new specialty programs might seem inconsistent with this recommenda-

*Using the current ratio of specialists-to-general dentists as an upper boundary is a less desirable alternative: the number of general dentists is increasing relative to the population, allowing a larger number of specialists in a time when, as noted, there will be more general dentists per 100,000 population and a wider range of services offered by these general dentists.

**See Appendix A for a discussion of the analyses that provide the basis for these assumptions and this recommendation.

tion, the task force opposes a moratorium on new programs. The inclusion of small specialty programs of particular quality in some of the newly established dental schools could be justified if they contribute directly to teaching in the predoctoral program and ensure a full spectrum of dental services to the patients being served.

The broad commitment of the dental profession and the specific commitment of dental school deans and specialty program directors will be required to make difficult decisions concerning the number and size of specialty programs. These decisions will be influenced by universities, hospitals, specialty organizations, state and federal governments, planning agencies, and ultimately, by society. Although no national organization or agency should attempt to control dental specialty positions in the United States, there will be a continuing need for an objective and influential organization to assess the progress that has been made and call attention to needed additional changes. The task force discusses this issue in a subsequent chapter of this report.

The two nonclinical specialties, dental public health and oral pathology, are excluded from the recommended reduction in the number of first-year positions. These two specialties and the professional activities of their graduates differ significantly from the clinical specialties. Neither specialty directly serves patients in need of dental care. Dentists in public health are concerned with population groups, with prevention and with large socioeconomic issues in health. Oral pathologists are employed in dental schools, hospitals, the military, and other patient-care institutions to provide diagnostic services for other dentists and physicians. In addition, the number of dentists enrolled in these areas has always been extremely small and does not affect appreciably the specialist-to-population balance of the dental work force. Nonetheless, attention should be paid to the number of entry positions in these two specialties at periodic intervals.

Organization of the Specialties. The eight specialties have been recognized by the dental profession primarily to protect the health and welfare of the public. At the time of their recognition, these areas of dental practice were considered beyond the preparation level of most general practitioners. However, dental graduates of today are increasingly well prepared as more dental schools emphasize the teaching of comprehensive care. The recommendations in the previous chapter will strengthen further the abilities of tomorrow's general dentist as more and more graduates seek advanced education in general dentistry.

Distinctions between some existing specialties also have been blurred. Factors contributing to this loss of distinction include shifting dental needs related to an aging population, the extension of each specialty area as a result of expanded knowledge and more sophisticated procedures, and preventive dental measures that reduce the need for some types of treatment. Within specialties, there may be conflict based on differing perceptions of their scope. It is time to reexamine the appropriateness of each one of the currently designated dental specialties.

The resolution of these problems is essential to those who plan and conduct advanced dental education programs. Many suggestions about changes in the dental specialties have been made to the task force during this study. For example, suggestions have been made that oral pathology should be expanded to include oral medicine and oral radiology; that orthodontics and pediatric dentistry should be merged, as well as a possible combination of endodontics and periodontics; that areas not primarily directed toward clinical practice should no longer be granted recognition as clinical specialties. Although eventual resolution of such specific and controversial issues will rest on judgments made by a body of knowledgeable professionals, objective evidence and "due process" must precede and guide these decisions. This current study of advanced dental education did not permit the conduct of such a process, and specific recommendations to reorganize existing specialties have not been made.

Dentists always have shared similar interests that were not formally recognized specialty areas, and advanced dental education programs often are developed to prepare other dentists sharing these interests. Operative dentistry, dental radiology, and dental materials are examples of specialized areas that are not recognized dental specialties. The profession benefits when concentrated attention advances knowledge, teaching, or patient care in a special field. As the particular organization grows, its leaders often seek formal recognition as a dental specialty because of the perceived benefits of this status. However, until there is an indepth study of each of the dental specialties, and until the relationship between the existing dental specialties and the general practice work force is clarified, the task force does not believe any new specialty areas should be recognized.

Requirements for recognition as a specialty area were developed and approved by the ADA in 1958 and have remained unchanged since then.[17] Significant changes have occurred in both dentistry and society since these criteria were developed over 20 years ago. The criteria are of disparate importance and may be quite different from those that would be developed if the profession began anew.

It will be difficult to undertake a fundamental revision of dental specialization; however, the task force believes that society and the profession would be served better by a carefully planned restructuring of the existing specialties and a reduction in the total number of specialties recognized by the profession. Although it was not within the scope of this study to develop specific recommendations, a functional classification based on the underlying nature and treatment of dental disease may be preferable. Examples suggested to the task force include surgical, growth and development, restorative, and diagnostic services.

4. ***The task force recommends that the ADA, through its Council on Dental Education, undertake a major study of dental specialization***

to review the purpose of dental specialty recognition and to accomplish the most effective structuring of those areas deserving specialty recognition.

Although the Council on Dental Education should be responsible for designing and conducting this study of dental specialization, members of the profession must be actively involved throughout the process. One phase of the study should be a review and revision, if necessary, of the requirements guiding approval of specialty areas. This review should be followed by an evaluation of the status of existing and potential specialties using the revised criteria. Voluntary self-study by the recognized specialties would be valuable, as they could identify those areas of care that should be performed only by specialists, consider changing dental needs of the population that may affect the future of the specialty, and define relationships between specialties and general practice.

Some readers may interpret these two recommendations concerning dental specialties as self-serving to the profession and as an attempt to limit the number of specialties and specialists, thereby restraining competition to the economic advantage of the specialist. The task force believes the opposite result will occur. This view is most apparent when the major recommendations in this section are considered simultaneously with those of the preceding section. Access to quality dental care at reasonable cost is best ensured when general practitioners provide comprehensive dental care and specialists provide only those services for which they have been particularly trained. The task force recommendations are directed toward that goal.

RESEARCH AND TEACHING CAREERS

The task force recognizes that teaching and research is the cornerstone of the university and profession. It endorses the continuation of both functions for all faculty members in predoctoral and advanced dental education. Improving the nation's dental health depends on increasing the understanding of dental disease through research, developing improved preventive and therapeutic measures, and transmitting knowledge and skills to those who can apply them. Dental educators and scientists who perform these important functions must be prepared in adequate numbers to meet the nation's needs. However, for purposes of clarity and emphasis, the task force has separated the discussion of advanced education in preparation for these careers. This is not intended to imply their separation in practice.

Preparation for Research. The NIDR has been the primary source of funds for dental research and training in the United States for over 30 years. While the NIDR's total budget has increased slightly in recent years, the three million dollars it now provides annually for research training is

less than half the amount that was available only a few years ago. The effects of inflation have worsened the situation. Since dental disease remains among the most prevalent afflictions in this country, the task force believes that it is sound public policy to increase dental research activity and urges that funds for dental research be increased in the immediate future.

In order to undertake a broader and more extensive research effort, universities must prepare a larger number of dental and other investigators. However, recent decreases in the number of dental investigators and the declining attractiveness of research careers for dental graduates is a cause for serious concern. This reduction is in part due to economic factors, since dentists who choose research careers typically incur higher educational costs while completing the required training and earn less than those in practice. As a result, persons trained in both clinical and research skills who can apply basic science research findings to the clinical setting are in short supply. Of the 713 principal investigators funded by the NIDR in 1979, only about one-third were dentists.[18] The need for dental research and, therefore, research investigators, is not limited to basic biomedical research; dentists competent to conduct clinical, health services, behavioral, or educational research in dentistry also must be prepared.

The task force believes that the number of opportunities for the advanced education of dental research scientists and investigators in oral health and related fields should be increased. Since the number of opportunities is directly linked to student and program support, as well as to general research funding, the task force addresses these financial issues in the following chapter.

Preparation for Teaching. Dentists with advanced training in education are as important to the profession as dental research scientists. Most dental specialty programs provide limited teaching experience, since the preparation of dental educators is not their primary objective. Potential dental educators increasingly are seeking additional training through fellowships following their specialty programs. As is generally true in higher education, most dental faculty acquire teaching skills informally rather than as a result of systematic training in educational methods; yet dental faculty should be competent in teaching as well as in research and in clinical application of their particular discipline. While emphasis among these areas will vary depending on particular circumstances, all three are essential.

More dental educators will be needed as the number of advanced general practice programs increases. The supply of experienced dental educators will be inadequate to staff these programs and it may be necessary to employ general practitioners whose primary qualifications are clinical competency and a willingness to teach. The constant expansion of dental knowledge and the need for effective and efficient predoctoral dental education also suggest a future shortage of dental educators prepared to meet these demands.

Advanced dental education programs specifically intended to prepare dental educators should be developed. The programs should be located in strong, academically oriented dental and other professional and graduate schools with well developed university relationships in order to draw upon the educational and scientific resources of the entire university. Such programs have been supported in the past by the federal government and graduates have made significant contributions to dental education and research. Because of the time necessary for their completion, these programs may be most appealing to the recent dental graduate, but mid-career teacher training fellowships could encourage faculty development. Since those faculty members who already teach in predoctoral and advanced dental education may require supplemental training, particularly in teaching and research skills, it is important also to provide inservice education and faculty development programs. Again, since development of additional skilled dental educators depends primarily on student and program support, the task force presents pertinent recommendations in the next chapter.

OTHER ISSUES

All training programs in specialties recognized by the ADA are reviewed and accredited by the Commission on Dental Accreditation. However, there are a number of programs in particular areas of dentistry such as anesthesiology, operative dentistry, oral medicine, and radiology that are not recognized specialties and therefore are not reviewed by the commission. Although these areas constitute only a small proportion of the total number of advanced dental education programs, their quality is as important to the student and ultimately to the public as formally recognized programs. The task force suggests that institutions should initiate their own periodic reviews of these programs, seeking assistance as necessary through the resources of the ADA and the AADS.

The United States plays an important role in advancing world dental health by educating dentists from other countries for careers in research, teaching, and specialty practice in their own lands. The task force members believe that, in some instances, foreign dental school graduates have been admitted with poor preparation. Care must be taken in enrollment decisions concerning foreign dental graduates to ensure that matriculants are both well prepared and committed to using their training to improving dental health in their own countries.[19,20]

Confusion exists in dental education because some institutions depart from customary academic conventions and continue to award graduate degrees for advanced clinical training. This problem is most apparent in clinical specialty programs sponsored by dental schools. The task force reiterates recommendations from previous study groups that have urged that

master's and doctorate degrees be awarded only for completion of programs that emphasize research and require a thesis.[21] While there may be some exceptional students or extremely efficient programs that allow simultaneous progress in clinical skills and research experience, in most instances additional time is necessary to complete a program that confers a graduate degree. Completion of advanced dental education programs that have the primary objective of preparing specialists for clinical practice can best be acknowledged by awarding certificates.

V.

FINANCING ADVANCED DENTAL EDUCATION

Financing advanced dental education is one of the most critical problems facing hospitals and dental schools offering such education. The willingness and the ability of institutions to change the way program and student costs are met will influence the realization of these task force recommendations. At present, all of higher education, including dental education, faces program costs that are higher than available resources. Unfortunately, precise information about the cost and financing of advanced dental education programs is almost nonexistent. Also, the cost to the student, the methods used by dentists to finance their advanced education, and the implications of such financial matters for the sponsoring institution have not been described systematically.

The financing of advanced dental education depends to a large extent on the characteristics of both the program and the sponsoring institution. In general, all dental education is supported by a variable mix of income from three major sources: education, service, and research revenues. Educational revenues include tuition income as well as public or private funds appropriated or allocated for general support or for special projects. Service revenues are derived primarily from patient care, but also may include funds generated by continuing education or other professional services. Funds for research come primarily from government agencies and private foundations, and usually support specific projects or training activities.

Funds from certain of these sources have been reduced in recent years, and may be reduced further in the future. Increased support will be necessary from other sources to maintain the current profile of advanced dental education programs. Changes in this profile that have been recommended by the task force will require either the reallocation of funds from one type of program to another within the institution or increased revenues from existing or new sources.

From the students' standpoint, dental education is very expensive. Many predoctoral dental students obtain loans to finance their education; the mean indebtedness for the 1979 dental graduate was $15,000.[22] In the face of such debt, new graduates must consider carefully if and when to enter advanced dental education. Financial assistance to dentists pursuing

advanced education never has been widely available. With decreasing revenues and increasing program costs, special efforts will be required to ensure the availability of future support for advanced students through stipends, fellowships, research and teaching assistantships, and loans.

Some observers have suggested that future financing of advanced dental education depends upon the profession's ability to emulate residency training in medicine, thereby obtaining a larger and more secure financial base from patient care revenues. Graduate programs in medical and dental education do share one common feature; a small number of students work closely with faculty to develop and refine clinical skills by providing care to patients. However, there are significant differences between graduate medical education and advanced dental education—differences that have had profound financial implications. For example, it is now considered essential for every medical school graduate to continue with three or more years of training that occurs primarily in hospitals. In contrast, dental school graduates legally are entitled to begin practice immediately, and a majority of them still do just that. In addition, many advanced dental education programs are not located in hospitals.

In order to put in perspective the suggestion that advanced dental education emulate medicine, it may be useful to review and contrast developments in the financing of graduate medical education with financing patterns in advanced dental education.

FINANCING ADVANCED MEDICAL AND DENTAL EDUCATION

Advanced training has been part of the continuum of medical education since the beginning of this century. Increasing numbers of medical school graduates were choosing to complete one year of hospital internship long before this experience was required for licensure in most states. Graduate medical education now has become universal and its length has increased greatly. In 1978, over 90 percent of graduating medical students intended to become certified by a specialty board, including certification in the specialty of family practice.[23]

With this expansion there has been increasing concern with the break in the continuity of medical education between predoctoral education in the medical school and the postdoctoral education in the hospital. Medical school faculties became more attentive to the scope and quality of graduate medical education and sought to establish and then expand their control over hospital-based programs. This effort coincided with public financing of medical care and payment of hospital costs.

The early medical internships were viewed by the medical schools as optional and the responsibility of the hospitals.[24,25] Before the 1960s, most medical internships and residencies were located in the wards of public

hospitals or in private hospitals where students learned from treating patients. These programs were not costly to operate, since intern and resident support consisted primarily of room, board, and laundry, and there was considerable use of volunteer faculty. Beginning in the mid-1960s, the large infusion of public funds for medical care of the elderly and indigent helped finance the hospital and its educational programs. As the financial indebtedness of the newly graduated physicians increased, stipends became necessary to ensure that all medical graduates could afford to complete the required training. Residents are now paid $15,000–$20,000 a year; fringe benefits and related faculty supervision approximately double that cost to a hospital. However, with the rapid rise of hospital costs, both public and private third-party insurers are beginning to question the use of patient care funds to support residency education.

The history of advanced dental education has been quite different. Perhaps the most important difference is that advanced dental education has never been required for general practice. Dental school graduates are considered competent to begin general practice without further experience. Hospital rotating dental internships, the predecessor of general practice residencies, had modest beginnings early in the century and became common only during the last decade. Dentists may choose to continue their education after receiving the dental degree, but this is a personal decision rather than a requirement. In many ways, dental specialty programs were an outgrowth and extension of predoctoral education. With the exception of oral and maxillofacial surgery, specialty programs were located primarily in dental schools. They were financed in much the same way as the predoctoral programs, with trainees usually paying tuition even though some advanced students did, and still do, receive support through teaching and research assistantships, tuition waivers, or both.

Legislation designed to finance medical care in the mid-1960s affected dentistry less than medicine, but the use of Medicaid funds to pay for dental care in some states did stimulate the growth of general practice residencies and specialty programs sponsored by hospitals. People, particularly those with lower incomes, began to use hospitals as their primary source of health care, creating a pool of ambulatory patients with substantial dental care needs. The costs of some hospital dental programs were included in the hospitals' reimbursement agreements with third-party payers, thereby generating substantial sums for the support of dental residencies. The marked increase in general practice residencies during the past 15 years was stimulated by this phenomenon and reinforced by additional categorical support from federal and private sources for the advanced training of general dentists.

Important financial differences between graduate medical and dental education result from the size of the respective systems. For example, in academic year 1976–77 there were approximately 60,000 medical residents, but only about 3,500 dentists were enrolled in advanced dental education. The estimated total cost of stipends and fringe benefits paid to

medical residents was $1.5 billion, most of which came from patient revenues.[25] While comparable figures are not available for dentistry, the total cost of advanced dental education is estimated to be about $21.5 million or about 1.5 percent of medicine's cost, assuming that only dentists enrolled in hospital programs received stipends.

These differences in the financing of advanced education programs located in the dental schools and in the hospitals has led to extensive discussion and some controversy. Some observers have charged that the hospital programs emphasize service to the exclusion of formal education, whereas others believe that dental schools operate in an unrealistic environment where only selected patients are treated and learning is more abstract than practical. The fact that hospital residents receive stipends while most advanced students in dental schools must pay tuition has contributed to the controversy.

FINANCING ADVANCED CLINICAL DENTAL EDUCATION

Most advanced dental education programs are in clinical disciplines. Almost all general practice and oral and maxillofacial surgery programs are located in hospitals, but a majority of programs in the other clinical specialties are located in dental schools. A feature common to all of them is the emphasis on clinical training and the care of ambulatory patients.

Program Support. Although specific data about the cost and financing of advanced clinical and dental education are lacking, there is no doubt that costs are rising and that current revenue will prove inadequate. Dental schools usually receive funds from various sources without restriction to particular programs.* Funds are then allocated to departments to support various activities including both predoctoral and advanced education. Predoctoral programs generally benefit from specialty programs located in the dental schools, but without specific financial information it is difficult for most dental school administrators to allocate costs or expenditures to either predoctoral or advanced dental education. Such information will become more important as dental schools become more dependent upon tuition and student-generated patient revenues.

Most financial support for hospital dental residencies comes from direct or indirect patient care revenues. Residency costs usually are included when hospitals negotiate reimbursement agreements with third parties, hence dental programs have some access to hospital revenues. All hospital activities, but particularly ambulatory care and education, will be limited and scrutinized by third-party payers as hospitals face continued inflationary and cost containment pressures. This future is troublesome for advanced medical as well as dental education. A consistent recommendation from current studies of graduate medical education has been that it should

*For a presentation of the sources of income received by dental schools, see Table A-2 in Appendix A.

continue to be supported through patient revenues.[24,26,27] This principle, which has been valid for hospital dental programs, should be applied vigorously to those programs located in dental schools.

The task force believes that the future of advanced dental education in clinical fields depends upon the ability to manage costs, maintain existing support, and maximize patient care income without jeopardizing educational quality. There is no reason to believe that additional educational subsidies will be provided by state or federal governments for these programs. While private agencies may continue to invest in short-term initiatives, few provide ongoing support for basic educational programs and there are reasonable limits to revenues from student tuition and fees. Research support has never been a major revenue source for programs designed only to produce clinicians.

5. ***The task force recommends that patient care revenues should be a major source of support for advanced clinical dental education programs.***

Increasing Patient Care Revenues. Although the task force believes that patient care revenues should be maximized, some dental schools currently operate under restraints that inhibit changes in that direction. For example, in some universities, the dental school does not have access to the patient care revenues it generates, but must transfer these funds to a general university account or to the state treasury. Also, if increases in patient care income are negated by equivalent decreases in state or university support, there is little incentive to make the recommended changes in patient care systems. It is essential that university and public administrators recognize the continuing need to maintain their support of advanced dental education and to remove any barriers or disincentives to the generation of program income.

Some students enrolled in specialty programs now work part-time in local general practices to meet educational and living expenses. If that same time were devoted to specialty care in the program, it would benefit both students and programs. Patients would receive a broader range of services, clinical facilities would be better used, and income would increase. In addition, the full attention of the advanced student would be directed toward the completion of specialty training, and specialty techniques would be practiced in a setting designed to improve skills. It seems clear that administrators of all dental specialty programs will have to review their curricula to determine the optimal involvement of their students in clinical services and patient care.

Organizational inefficiencies in dental schools limit income and detract from the quality and character of patient care. The attitude of the dental schools needs to be changed and far more attention must be paid to the needs of patients. Patients expect and should receive comprehensive care in a timely manner. Repetitious diagnoses, delays, and inability to provide

total care ought to be eliminated while the quality of patient care is improved. Graduate medical education has benefited enormously by the transformation of teaching hospitals from institutions for the poor into prestigious tertiary care centers attracting highly qualified physicians who serve as models for the students. Dental schools need to evolve in ways that lead faculty, students, and, most particularly, the public to perceive them as providers of care that is comprehensive, efficient, and of high quality.

Attaining this goal is a difficult, but important task. Realizing it will require major changes in the operation of clinical programs in many dental schools, including significantly improved coordination between specialty, predoctoral, and faculty practice programs in order to offer integrated, comprehensive care. The role of faculty will have to be redefined so that they become more involved in actually providing patient services. Some dental schools and hospitals may find it desirable to employ clinical faculty to care for patients whose needs are either beyond the capability of the students or so routine they do not contribute to the education of the student.

General Practice Programs. The financing of advanced general practice programs requires specific attention, as support must be available to expand these programs. The primary objective of general practice programs is to provide graduates with additional clinical experience, and these programs, just as with clinical specialty programs, should be financed primarily through patient revenues. General practice residencies are somewhat unusual since they have had access to special financial assistance. The Health Professions Educational Assistance Act of 1976 made federal funds available to establish, expand, and improve these programs. In addition, The Robert Wood Johnson Foundation instituted a major effort to expand dental services in hospital settings that assisted some general practice residency programs.

The continuation of these two sources of support is in doubt. The current federal administration has announced its intention to terminate support of general practice residencies and the foundation support was provided for a limited period of demonstrations, not long-term subsidies. Thus, in order for task force recommendations to be achieved, not only must general practice residencies be enlarged, but the enlargement must occur in the face of reductions in special financial assistance.

As the number of specialty programs is decreased, as the task force has recommended, some institutions may be able to reallocate resources from specialty to general practice programs. Existing dental care programs in neighborhood health centers, migrant health centers, public health programs, and armed forces clinics may offer clinical sites for the newly approved advanced programs in general dentistry. The ability to support educational activities within the existing financial structure of these programs will have to be explored. However, since beginning new programs and expanding existing ones will entail additional costs, initial support

from both federal and state governments is appropriate in view of the potential social benefits.

6. ***The task force recommends that the federal and state governments and other public and private agencies, including dental insurers, provide support to develop and evaluate a broad range of model programs for advanced education in the general practice of dentistry.***

Financial Data. Since data on the cost and financing of advanced dental programs are inadequate, administrators of these programs, who now are unable to answer questions about program costs, may soon find that they must have more information for internal fiscal management. The costs of all advanced dental programs should be identified as separate line item entries in institutional budgets. Only with such information can allocations to the various programs within a single institution be determined reasonably and justified. These data also are required to bring about necessary program changes and ensure continuing financial support. A standard system should be used by dental schools and hospitals with dental programs to collect financial data so that national purposes can be served. The 1976 curriculum study recommended a uniform system for dental schools, and efforts to implement that system have begun. There is equal need for a similar system in advanced dental education.

7. ***The task force recommends that the AADS and the ADA Council on Dental Education jointly develop a standard financial information system for advanced dental education programs.***

Student Support. Some advanced dental programs provide student stipends and waive tuition while other programs, sometimes within the same institution, do not. There is little consistency within institutions, among them, or among different disciplines. For example, the 1979–80 ADA Report of Advanced Dental Education reveals that within the same institution, some advanced students received nearly $20,000 while others paid nearly $10,000, and that among the seven pedodontic programs in the same metropolitan area, one program paid a second year student $19,603 and waived all tuition, while another program charged $7,920 in tuition and fees and provided no student support.[9] If financial resources were plentiful, every dentist would be supported while enrolled in an advanced dental education program. This goal is not attainable at present and may not be possible until fundamental reorganizations occur in the financing of dental education. Until then, priorities for the support of students must be determined.

The recommended expansion of advanced general practice programs suggests one clear priority for both the profession and society. Unlike dentists preparing for clinical specialties, those who complete advanced education for general practice can anticipate little, if any, financial gain even

though their improved quality of care and practice efficiencies should reduce direct and indirect costs to future patients. Dentists choosing to enter these programs should continue to be supported with stipends generated from patient revenues. The structure and clinical emphases of the new advanced programs in general dentistry also should generate income from patient care and it should be used to support students.

8. ***The task force recommends that stipends be provided all dentists in advanced general practice programs.***

Societal and professional needs do not mandate external support for all dentists preparing for clinical specialty practice. Most dentists enrolled in these advanced dental education programs can expect increased future income as specialists. However, when possible, it is desirable that dental graduates preparing for a clinical specialty receive stipends as partial payment for the patient care services they provide. The task force has recommended changes in the financing of advanced education that will result in increased patient income, some of which can be used for stipends. When students assume teaching responsibilities or assist faculty with research, they should be compensated appropriately through assistantships.

FINANCING ADVANCED DENTAL EDUCATION FOR CAREERS IN TEACHING AND RESEARCH

Since advanced programs preparing dentists for roles in teaching and research are essential to the public, the profession, and the system of dental education, the task force believes that the number of programs and the number of enrollees should be increased. Dental graduates can pursue various academic programs to prepare for these roles. However, those who also desire clinical specialization usually complete additional education offered at the same time or immediately after their specialty training. The trend is toward the addition of a fellowship year beyond the required clinical training.

Program Support. A characteristic of many of these programs is that they do not generate patient revenues. Their support is derived primarily from the sponsoring institution, external agencies, or student fees. The expansion the task force is recommending will require increased financial support.

Greater internal subsidization of these priority programs could be obtained from increased revenue from advanced clinical programs. Greater external subsidization from federal, state, and private agencies is needed. It will be especially important to provide more money for programs that prepare dental research personnel. While direct research and training funds from NIDR and indirect support from general research grants have been available to dental schools, there has been a significant reduction of

federal support during the past decade. Likewise, there is no assurance that federal support available in the past to schools of public health to prepare dentists for public service roles will be available in the future. To meet national needs, more, rather than less, support is required.

9. ***The task force recommends increased federal, state, and private support for advanced education programs preparing dentists for careers in education and research.***

Student Support. Dentists prepared for teaching, research, or public service careers are vital to future progress, yet those who choose these careers must anticipate less earning potential than colleagues who choose general or specialty practice. Consequently, these advanced education students, in particular, should be expected to bear minimum expense and to receive maximum financial assistance in preparing for these careers.

Fellowship support is the preferred form of student assistance. One approach is to award fellowships directly to dentists to assist in the financing of their graduate training at institutions they select. Another way is to award training grants to the programs that, in turn, provide fellowships to qualified candidates. Examples of the former method include the research fellowships awarded by the NIDR and the teacher training fellowships awarded by the American Fund for Dental Health. Federal training grant support currently is available to institutions preparing individuals for dental research and dental public health, but most of these funds have decreased in recent years and some have been terminated. Increased fellowship support is required for research scientist and teacher preparation to attract and assist more dentists interested in these careers.

Dentists preparing for careers in teaching and research can provide a valuable service to the institution by assisting in predoctoral education and research. Since such experience is analogous to the patient care experience for students enrolled in advanced clinical programs, teaching and research assistantships should be provided to these students.

Loans also are an appropriate form of assistance for students enrolled in nonclinical advanced dental education programs. Loan forgiveness provisions should be provided to those dentists who fulfill their announced career decisions. Those students who do not enter such careers should be contractually obligated to repay the loans.

10. ***The task force recommends that fellowships, assistantships, and loans be available to support dentists preparing for careers in education and research.***

VI.

PLANNING FOR THE FUTURE OF ADVANCED DENTAL EDUCATION

The task force believes it has met most of its original objectives: findings have been presented based on an evaluation of available information, major issues and problems have been identified, and recommendations have been made to guide their resolution. The recommendations are intended to shape an advanced dental education system that is responsive to the societal needs of the future. However, it is difficult to accomplish significant change in a major profession without an ongoing external evaluation. Consequently, throughout this report the task force has cited actions that must be taken to evaluate the effects of these recommendations and to provide a mechanism for future change.

THE NEED FOR CONTINUING EVALUATION

As advanced dental education becomes increasingly varied and more changes take place, there is greater need for coordination and planning. A group should exist to continue and to extend this study, set manpower goals, review developments in advanced dental education, and suggest future directions for institutions and programs. It should communicate issues and problems in advanced dental education to the private and governmental agencies concerned with advanced dental education. To be effective, this agency should bring about change by influence, not control. In part because no organization presently has such responsibilities, governmental agencies appear interested in assuming control of advanced education in all the major health professions. The current mistrust of governmental regulatory agencies and professional organizations creates an aura of suspicion that makes the formation of any such agency difficult. There is a critical need for the continuing evaluation of advanced dental education by a prestigious, influential private organization not dominated by a single interest group.

An organization of this kind might, through its influence rather than regulatory powers, engage in some or all of the following activities.

1. Review and critique dental manpower data, projections, and forecasts as a basis for policy development.
2. Assist in the coordination of agencies responsible for data development and analysis to ensure the availability of advanced dental education and manpower data, reduce the burden on respondents, and increase the effectiveness of data collection efforts.
3. Provide a forum for consumer reaction regarding problems in advanced dental education or subsequent practice of dentists with advanced training.
4. Maintain the continuity of advanced dental education with predoctoral dental education.
5. Study the financing of advanced dental education and recommend appropriate levels of financial support from students, patients, and society.
6. Publish reports and position papers on particular issues affecting advanced dental education that should be considered by private, professional, and governmental leaders.
7. Respond to requests from governmental, private, and professional organizations for independent evaluations of advanced dental education.

The task force believes it is time for a freestanding private agency to review, evaluate, and coordinate future developments in advanced dental education on a continuing basis. Given the current regulatory activities of the public and federal government in the health care field, the risk of inaction on the part of the dental profession is real. Advanced dental education might well face a prospect of external control if the profession does not initiate the planning for an independent agency.

AN INTERPROFESSIONAL EVALUATION GROUP

Medicine, like dentistry, is faced with many of the same important problems and issues in advanced education. While some of the problems are unique to each profession, others are shared by allopathic medicine, osteopathic medicine, and dentistry. A group with representatives from all three health professions might be advantageous to the respective professions and to society. The professions would benefit from the group's familiarity with the unique role of advanced education in the three professions, yet the presence of members from the other professions would give a broader perspective and could result in an integrated future direction that would not serve the specific interests of any single profession. One group speaking to issues affecting all three professions could be sensitive to the distinctions among them. Perhaps most importantly, such a group could be an

extremely powerful private voice speaking independently on matters of mutual concern to the health professions and society.

11. *The task force recommends the creation of an independent commission on advanced education in medicine and dentistry.*

Members of the proposed commission should include public representatives and representatives from each of the health professions. Members should be widely respected and experienced in order to lend credibility to the commission's recommendations. The commission could use expert consultants, create subcommittees to review specific problems of the professions, and be assisted by a small, professional staff. In making this recommendation, the task force recognizes that the Association of Academic Health Centers has made a somewhat similar suggestion independently and simultaneously.[28]

Planning and funding are needed for the proposed commission. Sponsoring agencies from each of the professions jointly might develop proposals describing the specific objectives, activities, and constituency of the commission. Appropriate sponsoring agencies from dentistry would be the ADA and the AADS. Initial funding of the proposed commission is a matter of considerable importance as financial support is often construed as a form of control. Since the commission should be independent in all respects, a preferred funding source would be a private foundation with interests in education and health. Although less desirable, federal support should not be eliminated as a possibility. Regardless of the source, initial funds should be available for a minimum of five years.

This recommendation affects three health professions and cannot be realized through the efforts of any single profession. While collaboration among the three professions to establish the commission has the greatest promise for success, foundation staff or Congress could take the initiative directly, if necessary. The task force believes the need for a new agency to coordinate advanced dental education is so imperative that the following alternatives are presented should it prove impossible to organize an interprofessional group.

ALTERNATIVES

Within dentistry there are only two agencies whose responsibilities might be extended to include such a comprehensive coordination of advanced dental education. One of these agencies, the ADA Commission on Dental Accreditation, is responsible for assuring, through the accreditation process, the quality of all dental and dental auxiliary education programs. To perform properly its accrediting function, the commission should not assume any responsibility that might compromise its objectivity. Therefore, the task force believes it inappropriate to charge the commission with

the tasks identified previously. The second agency, the ADA Council on Dental Education, already has broad policy responsibilities for all dental education. It could assume many of the proposed new functions, but the task force does not believe the council should do so. Such an expansion of the council's purview would subject its actions to allegations of self-interest, which would seriously limit the council's effectiveness.

An alternative would be to establish an independent commission on advanced dental education, not dominated by the dental profession, to extend the work of this task force and monitor the progress of its recommended changes. While this commission should not control the system of advanced dental education, it should suggest directions for existing institutions and for organizations, particularly governmental, that affect or are affected by the system. An independent dental commission might be sponsored jointly by the ADA and AADS with representatives from these two organizations developing the necessary proposals and seeking financial support from a foundation for an initial five-year period. Even though this commission should include public members, it would be vulnerable to the charge of being professionally self-serving. This possibility would be lessened should the National Academy of Sciences' Institute of Medicine, or some similar organization, incorporate the commission within its organizational structure.

The task force believes the least desirable alternative is the most easily accomplished. The dental profession could assume total responsibility for carrying out these functions by creating and supporting financially an independent professional agency. The ADA and the AADS could develop specifications for a new agency to exist within either organization. The Commission on Dental Accreditation and the Commission on National Dental Examinations serve as precedents, since both were established by the ADA in such a way as to ensure the independence of their actions. Membership would have to be carefully determined to include appropriate representation from the profession and the public. The commission could meet periodically to review issues and developments in advanced dental education and continue the activities of the current task force. While a small permanent staff might prove necessary, the commission also might use existing staff of the ADA and the AADS to support its work.

NECESSARY INFORMATION

Planning for an assessment of programs and institutions should be based on valid, reliable information. The task force was limited by the lack of data necessary to explore some problems in advanced dental education. The ADA, AADS, and U.S. Public Health Service collect and analyze most of the existing information concerning advanced dental education. Communication and coordination of data collection activities among and

within these organizations seem inadequate. As a result, certain information may be collected repetitively, whereas other information of value to those making decisions about advanced dental education programs may not be collected at all. The task force believes that representatives from these agencies should meet periodically to discuss their activities, identify and prioritize informational needs, and seek areas of cooperation and collaboration.

A particularly important use of data describing dentistry and dental education is the projection of future dental manpower requirements. Several methods are used to make manpower projections, and their respective advantages and disadvantages have been documented elsewhere.* To be effective, dental manpower forecasting models must accommodate many constantly shifting factors. In recent years, economists have joined forces with dental manpower agencies to apply economic projection methods to dentistry and the resulting econometric models show promise. Sophisticated projections of future requirements for personnel with advanced training should be made. Dental manpower data collection, analysis, and forecasting are important activities with long-range benefits to society, but they are expensive and will require increased financial support from governmental, professional, and private organizations.

*The discussion paper on "Issues in Forecasting Graduate Dental Education Manpower Supply and Requirements" contains an extensive discussion of these methods.

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APPENDIX A: DESCRIPTIVE DATA CONCERNING ADVANCED DENTAL EDUCATION

This appendix describes selected aspects of current status, historical information, and projections for advanced dental education programs and graduates. A brief description of the effects of adoption of the task force's recommendation concerning a reduction in the number of training positions in the clinical specialties is included.

CURRENT STATUS

Advanced dental education programs are offered by dental schools as well as by other health care institutions, particularly hospitals. Of the 60 operational U.S. dental schools, all but 8 have at least one clinical specialty program.[1] Three schools offer all eight specialty programs and 22 schools offer all of the six clinical specialties. A total of 277 specialty programs are offered by dental schools. One hundred and twenty-three nondental institutions offer 168 specialty programs. Most nondental institutions offer just one program, and the maximum offered is four, at four institutions. In contrast, general practice residencies (GPR) are based predominantly in nondental institutions. These institutions offer 264 programs while only 25 are offered by dental schools.

When first-year enrollment figures are examined, the difference in the number of training opportunities between dental schools and nondental institutions is more pronounced. Of the 1,237 first-year positions in specialty programs, 940, or 76 percent occur in dental schools even though these schools offer just 62 percent of the programs. In GPR programs, 90 percent of the positions occur in nondental institutions.

Table A-1 shows the number of nonresident aliens enrolled in specialty and GPR programs in dental schools and nondental institutions for academic year 1979–80. About 10 percent of total enrollment in these programs consisted of nonresident aliens, but this enrollment is not distributed evenly among institutions and programs. One percent of GPR enrollment was composed of nonresident aliens while 13 percent of all specialty program enrollment consisted of these students. The largest number of nonresident alien students was enrolled in orthodontic programs (n = 111). In all cases, the percentage of nonresident alien enrollment was larger in dental school programs than in nondental institution programs, with about one-sixth of total enrollment in dental school programs composed of these students.

HISTORICAL INFORMATION*

Table A-2 displays the distribution of dental schools' income sources for selected years from 1949. Since data specific to advanced dental education programs are not available, these figures can only approximate changes in revenue sources for advanced programs located in dental schools. Over the past three decades it is apparent that tuition and patient care income have represented a declining share of overall income. In the past decade alone these sources have remained steady, while federal revenues have declined and state and local support has increased.

Table A-3 presents the number of specialty and general practice programs offered at dental schools and nondental institutions from 1972 to 1980. The number of specialty programs in dental schools increased by 12 percent in this period while a similar decrease occurred in nondental institutions. The net change was an increase of one program. General practice residency programs have increased by 30 percent in the seven years, with growth occurring both in nondental institutions and in dental schools, which did not offer these programs until 1976.

*Specialty program and enrollment data discussed in this appendix are limited to the programs accredited by the ADA Commission on Dental Accreditation and underrepresent dental public health. Dentists preparing for this specialty may do so at schools of public health that are accredited by the Council on Education for Public Health. Comparable time-series data are not available for these public health programs.

A-1. Percentage of Nonresident Aliens Enrolled in Accredited Advanced Dental Education Programs, 1979–1980

Program	Dental Schools			Nondental Institutions			Combined Dental and Nondental Institutions		
	Total Enrollment	Nonresident Alien Enrollment	%, Non-resident Alien Enrollment	Total Enrollment	Nonresident Alien Enrollment	%, Non-resident Alien Enrollment	Total Enrollment	Nonresident Alien Enrollment	%, Non-resident Alien Enrollment
lontics	247	29	12	46	0	0	293	29	10
athology	45	12	28	8	1	12	51	13	25
nd maxillofacial gery	323	14	4	371	6	2	694	20	3
dontics	524	103	20	53	8	15	577	111	19
lontics	265	48	18	89	5	6	354	53	15
lontics	356	39	11	53	0	0	409	39	10
nodontics	245	74	30	103	2	2	348	76	22
l public health	13	10	77	25	7	28	38	17	45
total	2,016	329	16	748	29	4	2,764	358	13
practice res.	104	5	5	889	9	1	993	14	1
al	2,120	334	16	1,637	38	2	3,757	372	10

e: Council on Dental Education, American Dental Association, 1980.

Table A-2. Percentage Distribution of Sources of Dental School Income, 1949-1977

Source	1949-50[1]	1958-59[2]	1968-69[3]	1972-73[3]	1974-75[3]	1975-76[3]	1976-77[3]	1977-78[3]
Tuition and fees	35	27	26	17	17	17	17	18
Clinic income	25	16	14	9	11	11	11	11
Federal education revenues	NR*	NR	NR	20	14	11	8	7
State and local government	NR	NR	NR	38	38	41	45	47
Sponsored research	NR	12	11	8	7	7	7	7
Other sources	40	45	49	8	13	13	12	10

Not Reported

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Table A-3. Number of Specialty and General Practice Residency Programs at Dental Schools and Nondental School Institutions, 1972–1979

Year	Programs			
	Dental School		Nondental School Inst.	
	Spec.	GPR	Spec.	GPR
1972–73	248	–	196	223
1973–74	260	–	199	212
1974–75	266	–	190	230
1975–76	268	–	186	237
1976–77	268	6	171	243
1977–78	276	11	167	243
1978–79	276	19	166	250
1979–80	277	25	168	264

Source: Council on Dental Education. *Annual Report, Advanced Dental Education.* Chicago: American Dental Association, respective years.

First-year enrollment in specialty programs is shown in Table A-4 by program and type of institution. Enrollment in dental school programs has decreased slightly (3 percent), even though the number of programs increased (Table A-3). Orthodontic programs, with the largest number of students enrolled, experienced a 20 percent decrease, but increasing enrollment in prosthodontic programs (51 percent), together with essentially stable enrollments in the other programs, minimized the overall change. Enrollment in nondental institutions increased by 17 percent in the same period, in spite of an overall decrease in the number of programs (Table A-3). All these specialities experienced some growth, with the smallest increase occurring in the program with the largest enrollment, oral and maxillofacial surgery. Table A-5 presents total first-year enrollment figures for specialty programs by type and general practice residencies, and also shows the number of dental school graduates for each year from 1973 to 1979. While the number of specialty positions has remained virtually unchanged in this period, the number of general practice residency positions has increased by 70 percent and the number of dental graduates has grown by 37 percent.

The increase in the number and proportion of active dental specialists since 1955 is shown in Table A-6. The number of active specialists has increased by 500 percent in this period, and the number of specialists per 100,000 population has grown from 1.6 to 7.5. The total number of active dentists increased 46 percent in this same period. The greatest numerical growth occurred in orthodontics, with an increase of 5,070 specialists, and oral and maxillofacial surgery, with an increase of 3,064. The greatest proportional increase occurred in pedodontics, with a 1,340 percent increase.

PROJECTIONS*

The projected increase in the number of all active dentists, and of dental specialists by type, is presented in Table A-7. These projections assume that the number of dental school graduates will increase from the 1979 figure of 5,242 to 5,590 in 1987, and then remain constant until the year 2000. The attrition adjustments applied are the death rates experienced by age group cohorts of white males as reported by the National Center for Health Statistics with further activity adjustments based on rates developed from the 1976 ADA survey of all dentists.[2,3] Population estimates are Series II projections from the U.S. Census Bureau

*The projections presented here have been developed for the task force by the Bureau for Health Professions, Public Health Service, using ADA data (see footnote, Table A-6).

Table A-4. First-year Enrollment in Specialty Programs at Dental Schools and Nondental School Institutions, 1971-79

	1971-72		1972-73		1973-74		1974-75		1975-76		1976-77		1977-78		1978-79		1979-80	
	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.	d.s.	non-d.s.
Endodontics	**	10	109	17	104	18	110	20	114	20	110	15	121	19	116	21	118	23
Oral pathology	**	2	27	4	19	5	15	7	21	4	21	6	20	5	18	3	18	5
Oral and maxillofacial surgery	**	118	111	113	103	124	103	128	112	111	104	112	108	113	102	116	107	119
Orthodontics	**	3	324	28	317	28	304	26	280	24	259	27	272	24	259	25	259	24
Pedodontics	**	29	128	35	129	42	127	50	124	52	118	47	124	40	129	44	131	48
Periodontics	**	12	168	12	165	13	171	24	159	19	163	15	169	20	172	21	170	19
Prosthodontics	**	31	82	44	77	49	116	52	110	42	109	40	115	49	126	45	124	46
Dental public health	**	–	20	–	8	16	3	26	4	31	7	16	2	9	3	17	10	13
Total	**	205	969	253	922	295	949	333	924	303	891	278	931	279	926*	292	940*	297

*Includes one student in 1978-79 and three in 1979-80 enrolled in combined specialty programs

**Data not available

Sources: Council on Dental Education. *Annual Report, Advanced Dental Education.* Chicago: American Dental Association, respective years. Council on Dental Education. *Annual Report on Advanced Education at Non-Dental Institutions, 1971-72.* Chicago: American Dental Association, 1972.

Table A-5. Total First-year Enrollment in Dental Specialty and General Practice Residency Programs at Dental Schools and Nondental School Institutions and Total Dental School Graduates, 1972-1979

Program	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	% Increase/ Decrease from 1972-1979
Endodontics	126	122	130	134	125	140	137	141	+12
Oral pathology	31	24	22	25	27	25	21	23	−26
Oral and maxillofacial surgery	224	227	231	223	216	221	218	226	+ 1
Orthodontics	352	345	330	304	286	296	284	283	−20
Pedodontics	163	171	177	176	165	164	173	179	+10
Periodontics	180	178	195	178	178	189	193	189	+ 5
Prosthodontics	126	126	168	152	149	164	171	170	+35
Dental public health	20	24	29	35	23	11	20	23	+15
Combined programs	—	—	—	—	2	3	1	3	—
Subtotal	1,222	1,217	1,282	1,227	1,171	1,213	1,218	1,237	+ 1
General practice residency	542	587	660	694	733	753	835	923	+70
Total	1,764	1,804	1,942	1,921	1,904	1,966	2,053	2,160	+22
Dental graduates	3,961	4,230	4,515	4,969	5,336	5,177	5,324	5,424	+37

Sources: Council on Dental Education. *Annual Report, Advanced Dental Education.* Chicago: American Dental Association, respective years. Council on Dental Education. *Annual Report, Dental Education.* Chicago: American Dental Association, respective years.

able A-6. Number and Number per 100,000 Population of All Dentists, All Specialists, and Specialists by Type, 1955–79**

	1955		1960		1965		1970		1975		1979	
	n	n/100,000	n	n/100,000	n	n/100,000	n	n/100,000	n	n/100,000	n	n/100,000
ll active dentists	84,370	50.4	90,120	49.4	95,990	49.0	102,220	49.6	112,020	52.2	123,500	55.8
ll active specialists	2,751	1.6	3,763	2.1	5,832	3.0	9,322	4.5	13,128	6.1	16,595	7.5
Endodontics	–	–	–	–	–	–	457	0.2	815	0.4	1,089	0.5
Oral and maxillofacial surgery	785	0.5	1,077	0.6	1,489	0.8	2,189	1.1	2,963	1.4	3,849	1.7
Oral pathology	22	*	38	*	46	*	86	*	92	*	96	*
Orthodontics	1,367	0.8	1,887	1.0	3,093	1.6	3,901	1.9	5,232	2.4	6,437	2.9
Pedodontics	138	0.1	213	0.1	528	0.3	1,076	0.5	1,569	0.7	1,987	0.9
Periodontics	228	0.1	286	0.2	349	0.2	932	0.5	1,587	0.7	2,144	1.0
Prosthodontics	187	0.1	231	0.1	278	0.1	593	0.3	771	0.4	891	0.4
Dental public health	24	*	31	*	49	*	88	*	99	0.1	102	0.1

*Less than 0.1

'Accurate information about the number of general dentists and specialists has not been consistently available. Such information is maintained by two organizations, the U.S. Public Health Service and the American Dental Association. The PHS maintains actuarial adjusted dental manpower statistics, and makes adjustments by adding dental school graduates and subtracting from the total a yearly figure based on actuarial data and dental retirement rates. The ADA maintains a registry that historically was used for membership records. The registry was adjusted annually by adding graduates, but reductions were made only upon notification of death or retirement. The ADA completed a comprehensive survey in 1976 that updated all entries in the registry and identified dentists not listed. In 1979 a second survey verified the status of 96% of all entries. As a result, the ADA has developed the most reliable manpower data base that has been available. For the most part, historic discrepancies between the ADA and PHS data have been eliminated and the PHS now relies on the ADA for its basic manpower data.

ource: Division of Health Professions Analysis, Bureau of Health Resources, Public Health Service, 1980.

Table A-7. Projected Number and Number per 100,000 of All Dentists, All Specialists, and Specialists by Type, 1979–2000

	1979		1985		1990		1995		2000	
	n	n/100,000	n	n/100,000	n	n/100,000	n	n/100,000	n	n/100,000
All active dentists	123,500	55.8	141,540	60.5	156,290	63.9	170,040	67.1	182,790	70.0
All active specialists	16,595	7.5	20,506	8.8	23,542	9.6	26,402	10.4	28,540	10.9
Endodontics	1,089	0.5	1,792	0.8	2,184	0.9	2,653	1.0	3,054	1.2
Oral and maxillofacial surgery	3,849	1.7	4,609	2.0	5,188	2.1	5,732	2.3	6,107	2.3
Oral pathology	96	*	155	*	212	0.1	268	0.1	312	0.1
Orthodontics	6,437	2.9	7,011	3.0	7,364	3.0	7,673	3.0	7,757	3.0
*Pedodontics	1,987	0.9	2,482	1.1	3,041	1.2	3,461	1.4	3,794	1.5
Periodontics	2,144	1.0	2,892	1.2	3,487	1.4	4,066	1.6	4,535	1.7
Prosthodontics	891	0.4	1,409	0.6	1,855	0.8	2,287	0.9	2,677	1.0
Dental public health	102	0.1	156	0.1	211	0.1	262	0.1	304	0.1

*Less than 0.1
Source: Division of Health Professions Analysis, Bureau of Health Professions, Public Health Service, 1980.

Table A-8. Projections of the Total United States Population by Age Groups, 1980–2020*

Age	Year				
	1980	1990	2000	2010	2020
All ages	222,159	243,513	260,378	275,335	290,115
0–4	16,020	19,437	17,852	19,221	19,845
5–14	33,896	35,758	39,153	36,872	40,159
15–24	41,527	34,730	36,625	39,996	37,769
25–44	61,893	77,677	75,794	70,931	75,925
45–64	43,896	46,087	59,132	73,478	71,314
65–74	15,493	17,803	17,436	19,776	28,128
75 and over	9,434	12,021	14,386	15,061	16,975

*Series II projections, numbers in thousands as of July 1, includes armed forces.
Source: U.S. Department of Commerce. Bureau of the Census. *Current Population Reports*, Series P-25, No. 704, *Projections of the Population of the United States: 1977 to 2050*. Washington, DC: Government Printing Office, 1977.

(Table A-8).[4] Specialist projections assume no increase over the 1979 enrollment positions, and specifically exclude the possibility of nonresident alien graduates of these programs entering the U.S. work force. Projections of individual specialty areas take into account trends that have occurred since 1971 in enrollment positions (Table A-4).

A 48 percent increase in the number of active dentists is projected in the next 20 years, a faster rate of growth than is projected for the population. As a result, the ratio of dentists to 100,000 population will increase from 55.8 to 70.0. The projected number of specialists will also increase, and at a faster rate, than that for all active dentists. A 72 percent increase is projected, with the number of specialists per 100,000 population ratio increasing from 7.5 to 10.9. With respect to individual specialties, it is projected that the proportion of orthodontists in the specialty workforce will decrease from 39 percent to 28 percent with endodontists, periodontists, and prosthodontists comprising a greater proportion and the remaining specialty areas essentially maintaining their current representation. Figures A-1 and A-2 display graphically the relative increases in dental specialists as compared to the population and all active dentists respectively, and serve to combine the historical information in Table A-6 and the projections in Table A-7.

EFFECTS OF THE TASK FORCE RECOMMENDATION

The task force has recommended that the ratio of clinical specialists per 100,000 population be maintained at its current level of 7.4 for the rest of the century. Table A-9 indicated that 19,347 clinical specialists are necessary in the year 2000 to maintain this ratio. Using the same attrition adjustments that were applied to the projections presented earlier, it can be seen that 8,320 specialists who are currently active will still be active at the end of the century. In order to maintain the current ratio, an additional 11,027 active specialists are required. This figure is 8,577 fewer than the number projected if no enrollment changes take place.

Even though an assumption can be made that all students enrolling in specialty programs will graduate, attrition adjustments must be made to the group of specialists that will graduate between 1980 and 2000. When the adjustments are made, calculations show that the yearly entry figure must be 590 students. Since the assumption has been made that nonresident alien students will not enter the U.S. work force, this figure represents a 42 percent reduction from the approximate figure of 1,010 current first-year U.S. enrollees in clinical specialty programs. When a further assumption is made that the current level of nonresident alien enrollment will not change, the 590 figure represents an overall reduction of 35 percent of the current 1,191 first-year positions in the clinical specialties.

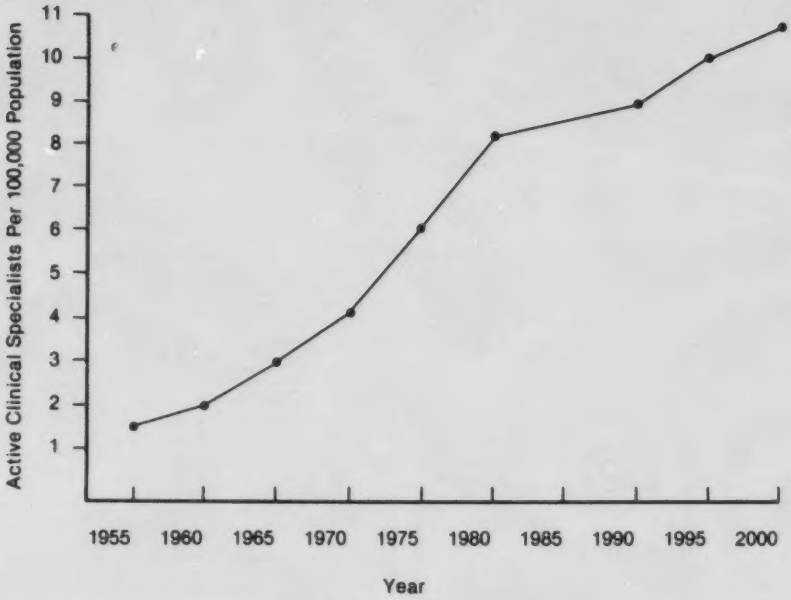

Figure A-1. Number of Active Clinical Specialists Per Population, 1955 to 2000
Sources: Public Health Service, Division of Health Professions Analysis. *Health Manpower Fact Book,* May, 1980. Public Health Service, Division of Health Professions Analysis. Based on counts reported by the ADA for respective years.

Table A-9. Determination of Necessary Additional Clinical Specialists to Maintain 1979 Specialist-to-Population Ratio

Year	Total Number of Specialists Needed to Maintain 1979 Ratio	Number of 1979 Specialists Still Active	Number of New Specialists Needed to Maintain 1979 Ratio
1979	16,397	16,397	–
1985	17,347	14,434	2,913
1990	18,118	12,483	5,635
1995	18,789	10,564	8,225
2000	19,347	8,320	11,027

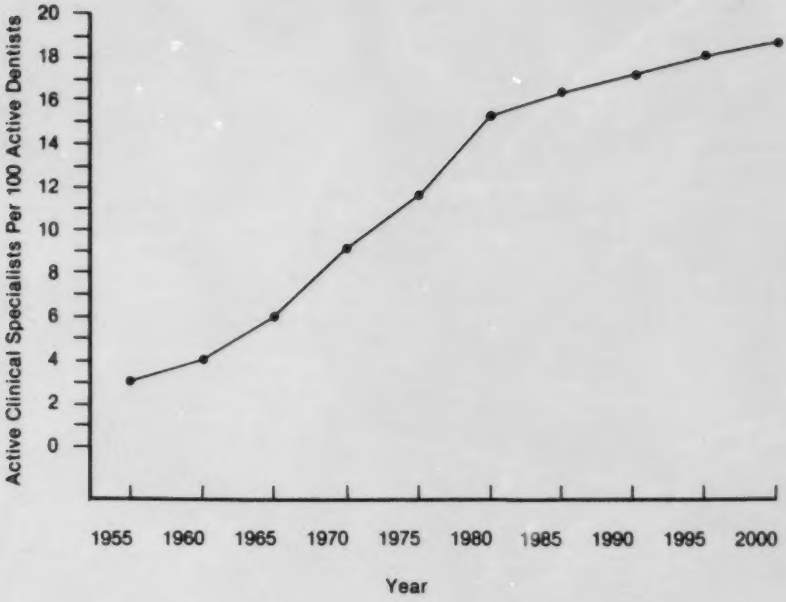

Figure A-2. Number of Active Clinical Specialists Per Active Dentists, 1955 to 2000
Sources: Public Health Service, Division of Health Professions Analysis. *Health Manpower Fact Book*, May, 1980. Public Health Service, Division of Health Professions Analysis. Based on counts reported by the ADA for respective years.

APPENDIX A REFERENCES

1. American Dental Association. *Annual Report. Dental Education, 1979–1980.* Chicago: American Dental Association, 1980.
2. U.S. Department of Health, Education, and Welfare. *Vital Statistics of the United States, 1979.* Vol. II—Section 5. *Life Tables.* Hyattsville, MD: 1978.
3. American Dental Association. *Distribution of Dentists in the United States by State, Region, District and County.* Chicago: American Dental Association, 1976.
4. U.S. Department of Commerce. Bureau of the Census. *Current Population Reports,* Series P-25, No. 704. *Projections of the Population of the United States: 1977 to 2050.* Washington, DC: Government Printing Office, 1977.

APPENDIX B: STRUCTURE AND FUNCTION OF THE COMMISSION ON DENTAL ACCREDITATION

The 1973 ADA House of Delegates approved the establishment of the Commission on Accreditation of Dental and Dental Auxiliary Educational Programs, thereby transferring the dental profession's accreditation program from the ADA Council on Dental Education to this newly formed commission. The commission has authority for the accreditation of dental schools, advanced dental education programs in the eight recognized specialty areas, advanced general practice programs, and dental auxiliary programs. By action of the 1979 House of Delegates, the name of the commission was changed to the Commission on Dental Accreditation.

COMMISSION STRUCTURE

The commission is composed of 20 members: the 12 members of the Council on Dental Education (4 representatives of the ADA, 4 representatives of the American Association of Dental Examiners (AADE), and 4 representatives of the AADS); 2 dentist specialty representatives selected by specialty organizations with certifying boards recognized by the ADA; 1 representative selected by the American Dental Assistants Association; 1 representative selected by the American Dental Hygienists' Association; 1 representative selected by the National Association of Dental Laboratories; 1 student representative selected jointly by the American Student Dental Association and the Council of Students of the AADS; and 2 representatives of the public selected by the Council on Dental Education.

Representatives serve for a term of three years and, except for specialty and student representatives, may be reappointed for an additional three-year term. The dental specialty members serve a single two-year term so that all specialties will participate on the commission within an eight-year period. The student member is also eligible for a single two-year term. Lay representatives to the commission are selected from appropriate national businesses, unions, or similar organizations. Rotation orders were determined randomly by the council, and assignments of specialty and auxiliary representatives are staggered.

The chairman of the Council on Dental Education, who also serves as chairman of the Commission on Accreditation, must be a member of the ADA and be nominated by the Council's membership to serve as chairman for a two-year period. The chairman is appointed by the ADA's Board of Trustees on a rotating basis from among the representatives of the AADE, AADS, and the ADA.

FUNCTION OF THE COMMISSION ON DENTAL ACCREDITATION

The duties and responsibilities of the Commission on Dental Accreditation are limited to the accreditation of dental, advanced dental, and dental auxiliary education programs. The commission has autonomy and final authority in matters related to program evaluation, site visit reports, accreditation status programs, and the development of accreditation policy and guidelines. In addition, the commission develops and approves educational standards and requirements. However, the commission must provide adequate notice of proposed or revised educational standards to all persons, institutions, and organizations significantly affected by its accrediting process and also provide an opportunity for those affected to comment on the standards and requirements prior to their adoption. Therefore, in considering such revisions, the commission seeks appropriate consultation from the ADA House of Delegates, the AADE, the AADS, specialty parent organizations and certifying boards, dental auxiliary areas, educational institutions, the consumer public, and students.

The costs associated with convening the Commission on Dental Accreditation and the Council on Dental Education and their committees are absorbed by the ADA. The costs of activities associated with the accreditation program also are the ADA's responsibility. Consultation services provided by the commission are available to any institution upon request. This consultation, which may be a written or verbal communication or a consultative site visit, may be sought by educational institutions at any time.

COMMISSION COMMITTEES

Six committees have been established to assist the commission in its accreditation activities and to make recommendations regarding educational standards and requirements, accreditation matters and policy, and other related educational issues. The committees serve a dual role, serving as commission committees when they consider accreditation matters and as council committees when they consider all other educational issues. The six committees are

Committee on Dental Educational Institutions
Committee on Advanced Education
Committee on Dental Hygiene Education
Committee on Dental Assisting Education
Committee on Dental Laboratory Technology Education
Committee for the Division of Educational Measurements

Each committee is composed of consultants with expertise in the respective area. In addition, all commission and council members serve on one or more committees to maintain liaison, and a member of the council or commission is appointed to serve as committee chairman. All appointments to committees are made by the chairman of the Council on Dental Education.

The committees review institutional site evaluation and progress reports and offer recommendations on accreditation to the commission. The final decision on all accreditation matters is the responsibility of the commission. Similarly, the committees consider policy issues and offer recommendations regarding these issues to the Council on Dental Education.

THE ACCREDITATION PROCESS

To apply for accreditation, an institution must submit a completed application and self-study manual that describes the proposed curriculum, faculty, facilities, and administration for the program. Applications for accreditation of advanced programs are reviewed by the commission and by the Committee on Dental Educational Institutions or the Committee on Advanced Education. The initial accreditation status of "preliminary provisional approval" is awarded general practice residency and general dentistry programs on the basis of a review of the application without an on-site evaluation. Effective January 1, 1981, the initial accreditation status of "accreditation eligible" will be awarded to new or proposed specialty educational programs on the basis of a site evaluation visit.

The initial, comprehensive on-site evaluation of an advanced program is conducted by consultants of the commission when students are enrolled in each year of the program. Following the site visit, a preliminary report of findings is prepared, then reviewed by the site visit team and by the institutions being evaluated. The formal site visit report and the institution's response to that report are submitted to the commission and its appropriate subcommittee for review. Based on its review of the site visit report, the Commission may grant one of three accreditation classifications: "approval," "conditional approval," or "provisional approval." If a program is granted "approval," it will be revisited in seven years and is requested to inform the commission of any major changes that may occur in the interim. If a program is granted "conditional approval" or "provisional approval," it is requested to submit a report in a specified period of time (usually one year) that will document progress made in implementing recommendations contained in the commission's formal accreditation report. In some cases, a special revisit may be conducted to evaluate progress in remedying specific deficiencies. In instances where program deficiencies are unusually severe or persistent, the commission may grant "provisional approval" status and indicate its intention to withdraw accreditation at a specified time unless substantial progress in correcting the deficiencies is demonstrated.

Institutions and programs that have been denied accreditation or have had their accreditation withdrawn have the right to appeal commission actions. An appeal board hears and judges conflicts that may arise between an educational program or institution and the Commission on Dental Accreditation. The appeal board, which is autonomous from the Council on Dental Education and the Commission on Dental Accreditation, is composed of four core members, including one representative selected by the AADE, one representative selected by the AADS, one representative selected by the ADA, and one consumer representative

selected by the Council on Dental Education. Depending on the type of appeal under consideration, representation from auxiliary or advanced education areas is also included on the appeal board. Appeal board members are representatives different from those who serve on the Council on Dental Education or the Commission on Dental Accreditation.

It is the philosophy of the Commission on Dental Accreditation and of the ADA to coordinate on-site evaluations of all accredited dental programs sponsored by a single institution. Advanced programs sponsored by dental schools are site visited at the same time as the predoctoral and auxiliary programs at those institutions. The commission requires that the dental services of hospitals that sponsor advanced dental education programs be accredited by the ADA Council on Hospital and Institutional Dental Services. Like the commission, the Council on Hospital and Institutional Dental Services maintains a seven-year accreditation cycle. The evaluations of a hospital's dental service and advanced education programs are coordinated so that both evaluations can be accomplished in a single visit.

TASK FORCE DISCUSSION PAPERS

Status of the Predoctoral Dental Education Program and Its Impact on Graduate Dental Education
Don L. Allen, Dean, College of Dentistry, University of Florida

The Scope and Objectives of Graduate Dental Education—I
James W. Bawden, Alumni Distinguished Professor, School of Dentistry, University of North Carolina

The Scope, Goals, and Objectives of Graduate Dental Education—II
James E. Mulvihill, Vice President for Education and Research, Long Island Jewish-Hillside Medical Center

Societal and Professional Forces Affecting Graduate Dental Education
Lawrence H. Meskin, Chairman, Department of Health Ecology, School of Dentistry, University of Minnesota

The Governance and Control of Graduate Dental Education
John J. Salley, Vice President, Research and Graduate Affairs, Virginia Commonwealth University

The Necessity for Advanced Trained Dental Professionals
Harold Hillenbrand, Executive Director Emeritus, American Dental Association

Financial Issues Which May Affect the Graduate Dental Education System
James F. Kelly, Executive Vice-Chancellor, State University of New York

The Financial Aspects of Graduate Dental Education
Stephen Wotman, Director, Collaborative Research Program for Oral Health Services, Columbia University; Gary L. Herrmann, Assistant Dean for Administration, Columbia University

Issues in Forecasting Graduate Dental Education Manpower Supply and Requirements
David O. Born, Associate Professor, School of Dentistry, University of Minnesota

Coordination and Development of a Graduate Dental Education System
Alvin L. Morris, Professor, Dental Care Systems, School of Dental Medicine, University of Pennsylvania